TELEGRAPHIC ADDRESS:

HEAD OFFICE: BARCELONA

# COMPANIA GENERAL DE TABACOS DE FILIPINAS

Established in 1882.

Capital: £ 3,000,000

Shipping Department, 63 Escolta.

Manila

General Office,

Calzada Marques de Comillas.

Retail Store, 63 Escolta.



BRANCHES AND AGENCIES

in the principal cities of the world and towns of the Philip-

Proprietors of the celebrated factories

## "La Flor de la Isabela"

High grade cigars manufactured with the most selected leaf grown in the estates of the Company.

#### SPECIAL BRANDS:

Pig's tails, Vegueros Especiales, Regalia A. Lopez, Regalia G. Pereire, Favoritos A. Lopez, Favoritos A. Correa, Perfectos Especiales, Exquisitos, Reina Victoria, etc.

Excellent common brands.

## "La Clementina"

Alcohol Manufactures—Gin—Distilled Spirits

#### GENERAL IMPORTERS AND EXPORTERS

A very extensive coastwise service with up-to-date steamers

#### COMPANIA TRASATLANTICA SS. CO.

(Spanish Royal Mail)

Direct service between Philippines, Spain, and England. Through tickets to and from New York issued. Lines of Steamers to all ports of the World.

#### FAR EASTERN BRANCH AGENCIES:

YOKOHAMA...... 240 Settlement.

SHANGHAI...... J. DELBOURGO, 29 Rue du Consulat.

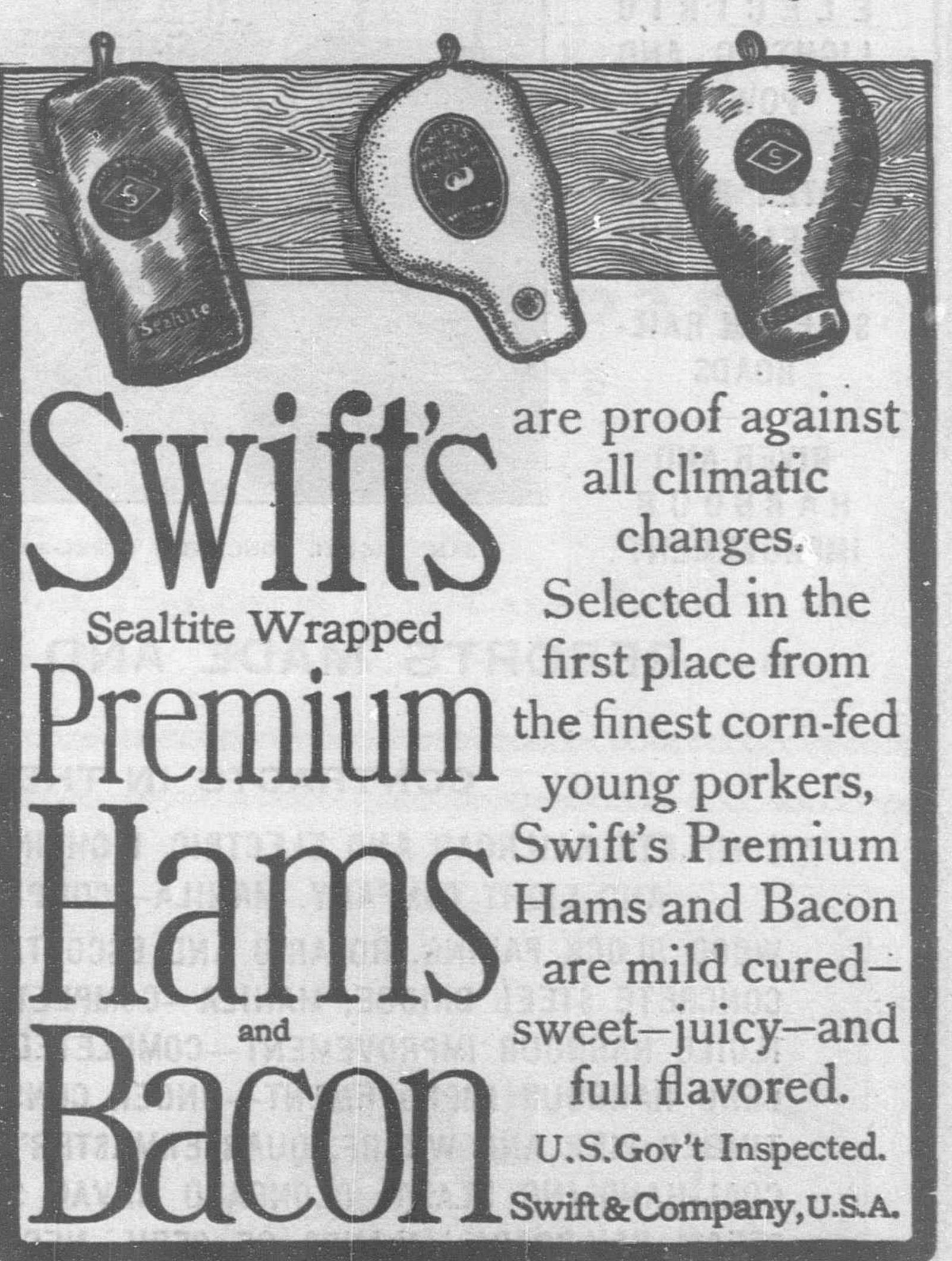
HONGKONG....... A. R. MARTY, 2 Pedder-st.

SINGAPORE...... Max. STOLZEL, 4 Battery-rd.

# Concentrated Soups Are made from prime stock and choice vegetables, by expert French Chefs, in the best equipped kitchens. Libby's Mock Turtle, Mulligatawny, Oxtail, Chicken, Tomato and Vegetable Soups are delicious, wholesome, appetizing—and they are always ready to serve. Your grocer has Libby's Soups or can get them for you. The Booklet, "How to Make Good Things to Eat," sent ree. Address Libby, McNeill & Libby

#### ORIENTAL HEADQUARTERS

SWIFT & COMPANY · · · No. 32 Nanking Road, Shanghai WM. H. ANDERSON & CO., · · Foot Santa Cruz Bridge, Manila.



#### ORIENTAL HEADQUARTERS

LIBBY, McNEILL & LIBBY · · · No. 32 Nanking Road, Shanghai. WM. H. ANDERSON & CO., · · Foot Santa Cruz Bridge, Manila.

## J. G. WHITE & GO.

(INCORPORATED)
NEW YORK

Cable Address: "WHITEMOTH"

#### CODES:

Western Union and A B C, 5th Edition

## J. G. WHITE & GO.

(LIMITED) LONDON

Cable Address: "WHITTERICK"

## Construction Office for Work in the Far East

MANILA, PHILIPPINE ISLANDS

ENGINEERS

Cable Address: "Whitemanla"

CONTRACTORS

## GENERAL CONSTRUCTION WORK

E L E C T R I C TRAMWAYS

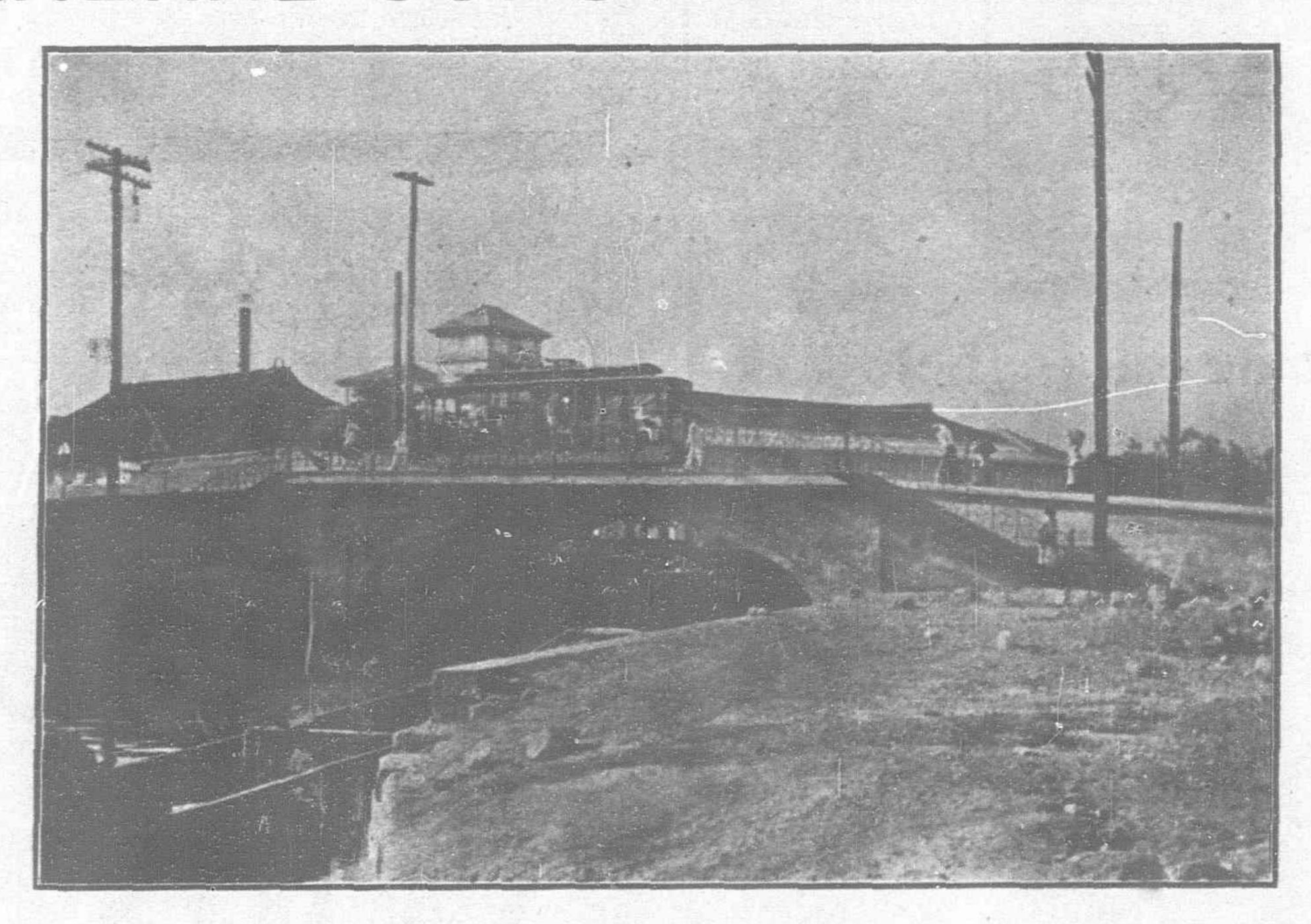
POWER PLANTS

ELECTRIC LIGHTING AND POWER

WATER POWER DEVELOPMENT

STEAM RAIL-ROADS

RIVER AND
HARBOUR
IMPROVEMENT



SAN MIGUEL CONCRETE, STEEL-ARCH BRIDGE, MANILA, CONSTRUCTED BY
J. G. WHITE & CO. (INC.)

DREDGING

**DOCKS** 

WHARVES

PAVING

WATER SUPPLY

SEWERS

COAL HANDL-ING PLANTS

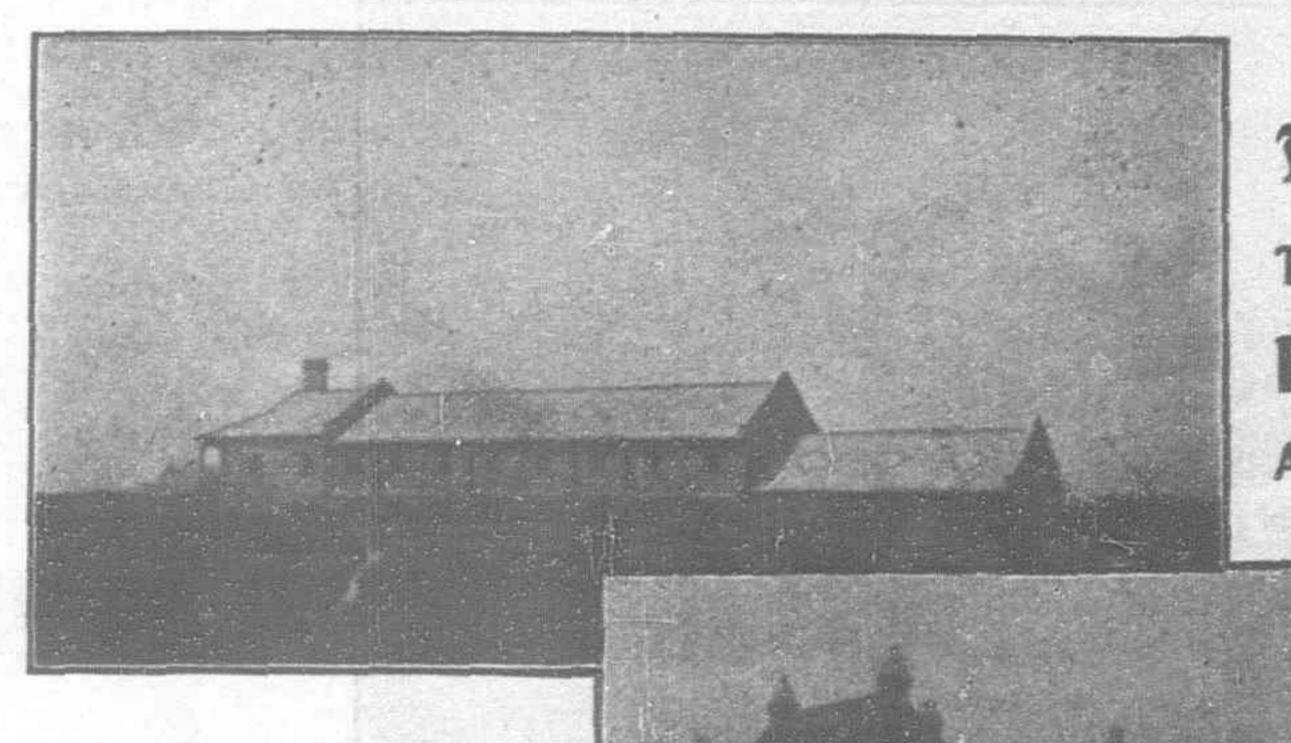
### REPORTS MADE AND ESTIMATES FURNISHED

#### CONTRACTS IN THE PHILIPPINE ISLANDS:

COMPLETE RAILROAD AND ELECTRIC LIGHTING SYSTEM FOR THE MANILA ELECTRIC RAILROAD AND LIGHT COMPANY, MANILA—COMPLETED

WOOD BLOCK PAVING, ROSARIO AND ESCOLTA, MANILA—COMPLETED
CONCRETE STEEL BRIDGE, MANILA—COMPLETED
ILOILO HARBOUR IMPROVEMENT—COMPLETED
CEBU HARBOUR IMPROVEMENT—UNDER CONSTRUCTION
TIMBER PIER AND WHARF, QUARTERMASTER'S DEPARTMENT, MANILA—COMPLETED
COAL-HANDLING PLANT, OLONGAPO NAVAL STATION—UNDER CONSTRUCTION
STEAM RAILROADS, ISLANDS OF CEBU, NEGROS, AND PANAY—UNDER CONSTRUCTION
FORT WILLIAM MCKINLEY—PASIG EXTENSION, MANILA E. R. R. & LIGHT CO.—COMPLETED
TO FORT MCKINLEY

## Che A. Butler Cement Tile Works, Ltd., Shanghai



MANUFACTURERS OF HIGH GRADE

for verandahs, halls, vestibules, greenhouses, lobbies, kitchens, lavatories, bathrooms, pantries, etc., in an immense variety of colours and designs.

The cleanest and most sanitary floor. Artistic, tasteful, wellwearing and cheap.

Rooffiles: fireproof and nonconducting, allowing for a good ventilation, yet safe in any weather; made in various shapes and any desired color.

A Roof of these tiles combines the advantages of iron, slate or any other roofing, but is cooler, prettier and cheaper.

Stable-Flooring: after the "Standard" pattern adopted by the British war office and all the leading stables of Europe.



Solid as granite, but easier kept clean and less slippery

Pavement Peates for outdoor paving

Ventilation and Foundation Bricks after any required design conical, etc.



Agent and General Manager

F. E. SCHNORR

45 Kiangse Road

## Henry W. Peabody & Company

EXPORT AND IMPORT COMMISSION MERCHANTS
9 PLAZA DE P. MORAGA, MANILA, P. I.

OFFICE AT-

New York

Boston

London

Liverpool

San Francisco

Cape Town, S. A.

Sydney, N. S. W. Merida, Yucatan

## LA PARISIEN CARRIAGE MANUFACTORY

TELEPHONE NO. 520

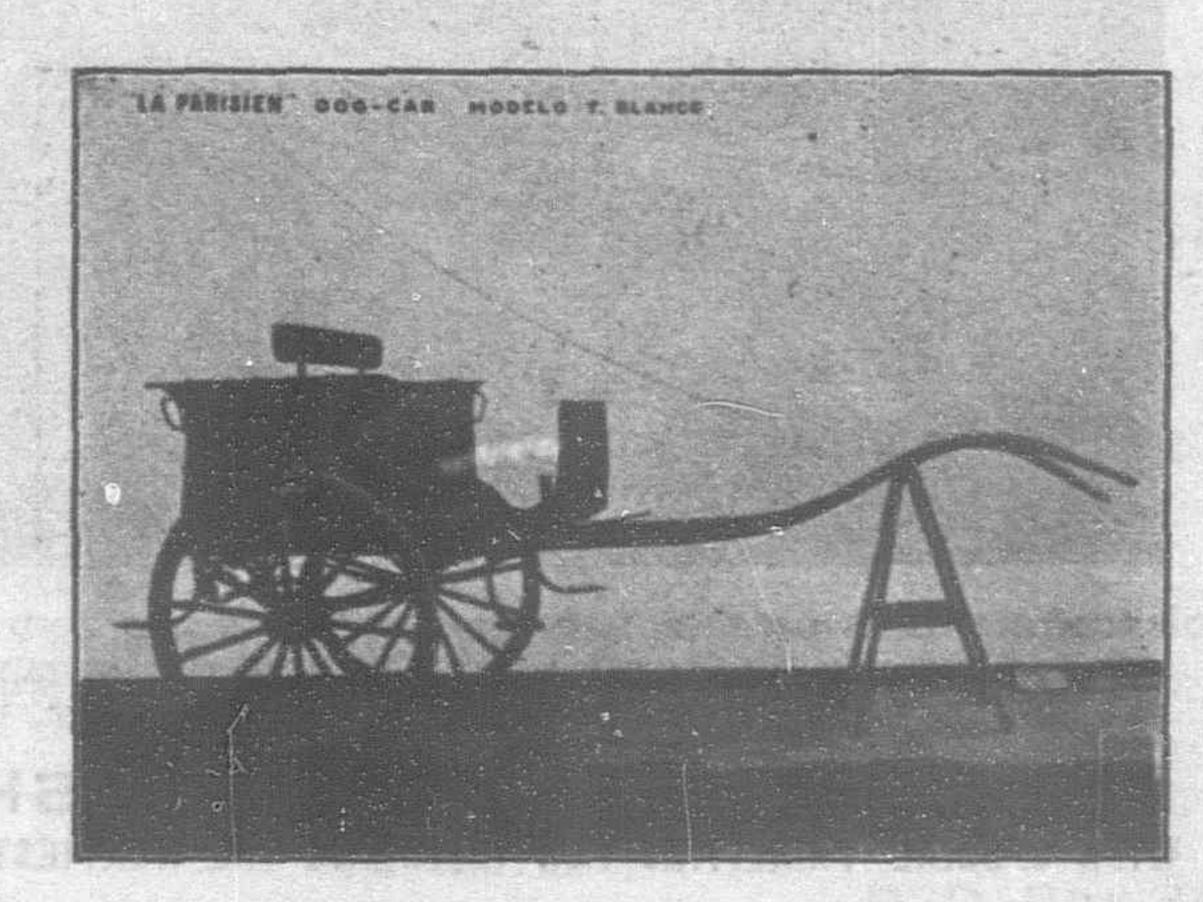
340 CALLE PALACIO

MANILA, P. I

Manufacturers of all Classes of Vehicles

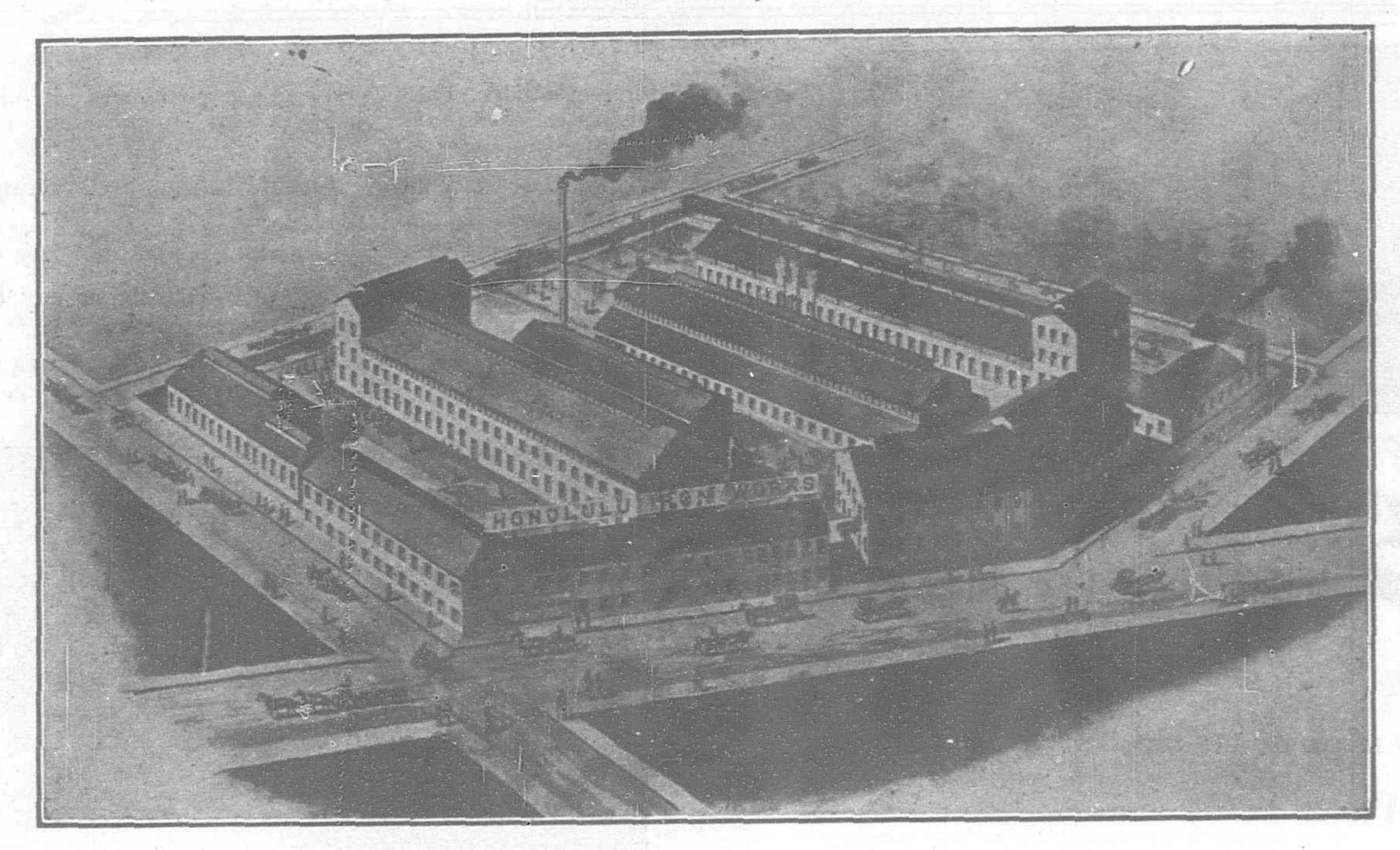
We Use The Famous
"GUIJO DE SAN MATEO"
Only the Very Best Materials,
AMERICAN AND FRENCH

Goodyear Rubber Tires



## THE HONOLULU IRON WORKS CO.

HONOLULU, T. H.

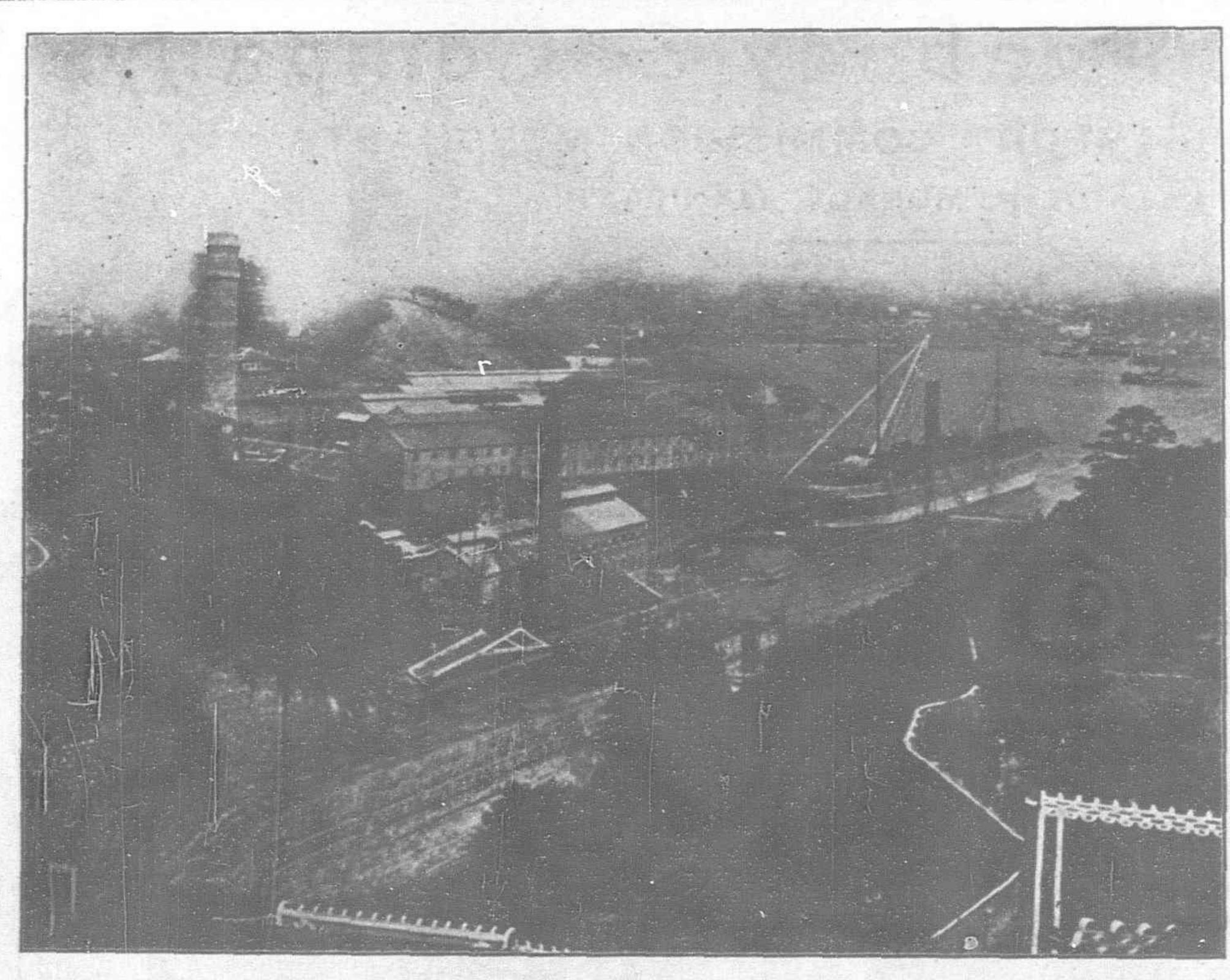


VIEW OF THE WORKS, HONOLULU, T. H.

## ENGINEERS, FOUNDERS AND MACHINISTS

COMPLETE OR PARTIAL SUGAR HOUSE INSTALLATIONS A SPECIALTY.

C. B. RIPLEY, AGENT, PARIS BUILDING, MANILA, P. I.



ENGINE WORKS OF THE MITSU BISHI DOCKYARD AND ENGINE WORKS, NAGASAKI, SHOWING 100 TON SHEERLEGS WITH WHICH THE STEAMER "HITACHI-MARU," 7,500
TONS GROSS, BUILT AT ITS PLANT, IS BEING EQUIPPED

## MITSU BISHI DOCKYARDS & ENGINE WORKS, NACASAKI

## DOCK NO. 1.

#### DOCK NO. 2.

#### DOCK NO. 3.

PATENT SLIP FOR VESSELS UP TO 1,000 TONS, GROSS

#### THE BEST EQUIPPED SHIPBUILDING PLANT IN THE FAR EAST,

WITH SPECIAL FACILITIES FOR HANDLING THE HEAVIEST CASTINGS AND THE REPAIRING OR BUILDING OF SHIPS, ENGINES AND BOILERS, ALSO ELECTRICAL WORK.

#### LARGE STOCK OF MATERIAL, AND FITTINGS ALWAYS ON HAND

THE POWERFUL SALVAGE STEAMER "OURA-MARU" (712 TONS, 700 I. H. P.) EQUIPPED WITH NECESSARY PUMPS AND GEAR, IS ALWAYS READY AT SHORT NOTICE.

#### WINE AND SFIRIT MERCHANTS

LONDON
RANGOON STREET
CRUTCHED FRIARS

GLASGOW SAINT ENOCH'S SQUARE



SHANGHAI FOOCHOW ROAD

HONGKONG QUEEN'S ROAD

SINGAPORE RAFFLES QUAY

TIENTSIN CONSULAR ROAD

## Caldbeck, Macgregor & Co.

GENERAL MANAGERS

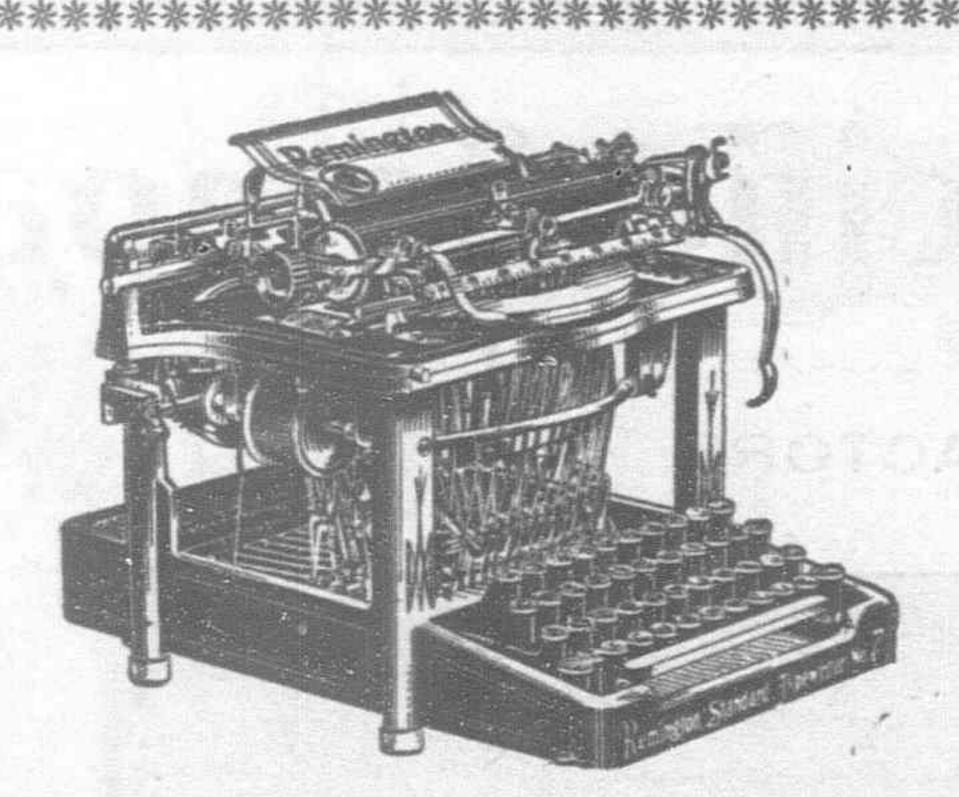
THE AQUARIUS COMPANY

MANUFACTURERS OF PURE SPARKLING MINERAL TABLE WATERS

AQUARIUS IS EVERYWHERE ESTEEMED AND PREFERRED
AS A HIGH CLASS TABLE WATER

Abstract from ANALYTICAL REPORT of Dr. John Muter of London.

- "I find it Highly Aerated and in perfect condition, and to be made with Pure Distilled Water."
- "It is Entirely Free from all Forms of Organic Contamination, and from microbes."
- "I tested it for lead, copper, tin and all poisonous metals, but none were present."
- "It is an Aerated Water of the Highest Quality, both from a manufacturing and sanitary point of view."



#### A TYPEWRITER

has come to be a necessity in business and professional correspondence. The superiority of type-written work over handwriting cannot be doubted.

#### THE REMINGTON TYPEWRITER

embodies the features which have made typewriting a success: speed, durability, ease, and simplicity of operation; plain legible work. ANYONE can quickly and easily learn to operate a Remington. It is many times faster and better than writing by hand.

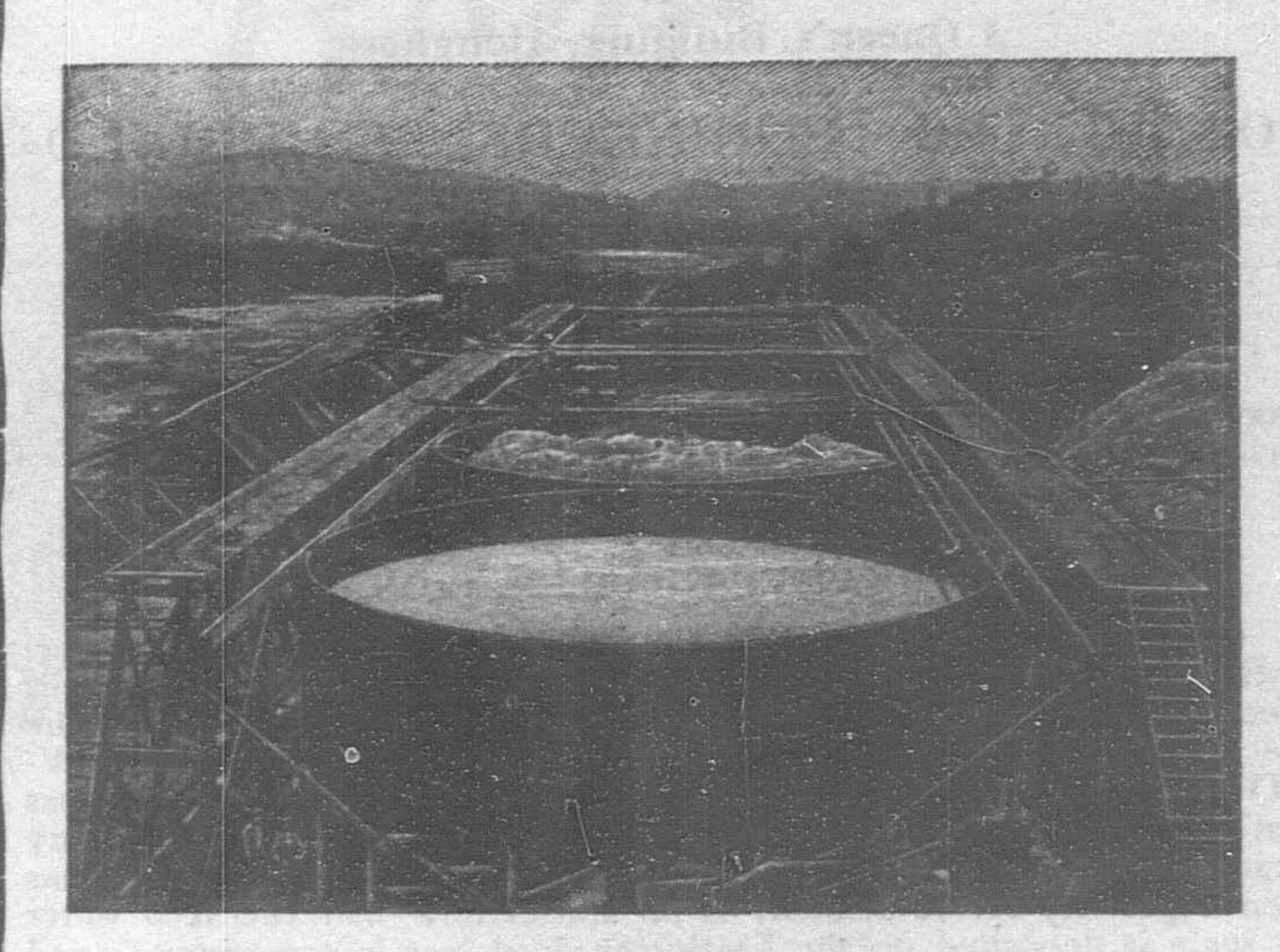
## Remington Typewriter Co.

NEW YORK AND EVERYWHERE

MCALISTER & CO	)., 1	JII	).		-		-40	-	-	Singapore
E. C. McCULLOUG	GH	&	C	0.						- Manila
MUSTARD & CO.										
SIEMSSEN & CO.										
E H. TUSKA										

## CYANIDE AND MINING TANKS

Complete Plants Furnished



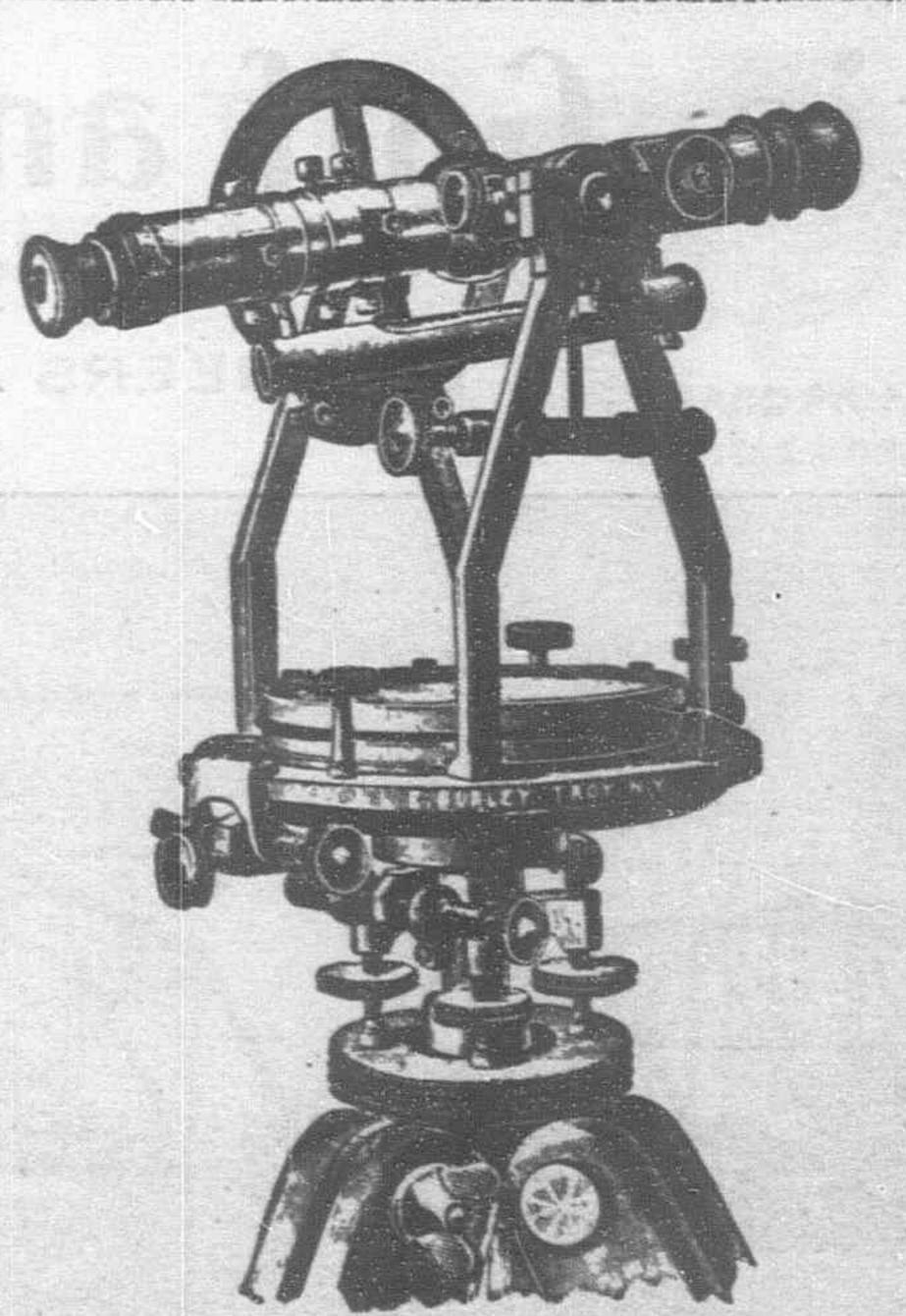
PACIFIC TANK COMPANY
MANUFACTURERS

Mining, Oil, Water and Wine

TANKS

ILLUSTRATED CATALOG MAILED FREE. ADDRESS

PACIFIC TANK CO. Dept. "I" 301 Market St., San Francisco, Cal., U. S. A.



The Best

American

and French

SURVEYING

INSTRUMENTS

Sole Agents

U. S. Signal Corps

FIELD GLASSES

GURLEY'S RECONNOISSANCE TRANSIT

36 Escolta

#### DIAMONDS-WATCHES-JEWELRY

Finest and latest makes in American and Swiss watches.

The largest and most dependable stock of American and French Jewelry in Manila.

## GREILSAMMER BROS.

MANILA, P. I.

P. O. Box 284

TELEGRAPH ADDRESS: "Carmichael, Hongkong"

A. B. C., 4th and 5th Editions; Watkins'; A 1; and Lieber's Standard

## CARMICHAEL & CLARKE

3 Queen's Building, Hongkong

#### CONSULTING ENGINEERS, SHIPBUILD-ERS AND CONTRACTORS

Agents for "SMOOTH-ON" BOILER CEMENT

For leaky boilers "Smooth-On" is indispensable. It saves boilermakers' bills and worry, as when applied the cement metalizes, becomes part of the boiler, and effects a permanent cure.

#### ATLAS PRESERVATIVES-BOILER, IRON AND WOOD

BOILER PRESERVATIVE E. prevents corrosion and the formation of scale. In boilers where corrosion is taking place it will effectually check it, and all scale will be entirely removed. The use of zinc plates and soda is dispensed with. By using PRESERVATIVE E. a boiler can be kept in better condition and at less cost. It is used by all the leading steamship lines and in many large power installations and mills. For water-tube boilers it has been especially recommended, as no matter how bad the feed water no scale is deposited on the heating surfaces, nor is corrosion allowed to take place.

PRESERVATIVE A. protects from white ants and other destructive insects, and from organic decay. In conjunction with coal tar, it is an effective substitute for creosoting. For railway tracks it is unique, as it is directly preservative to wood, iron and other metals with which it comes in contact, and scrub grass and weeds are eradicated.

#### BLUNDELL'S ALUMINUM PAINT

For all purposes. Will withstand heat, sea-water and all atmospheric conditions and has a neat and elegant appearance.

## JOHN GIBSON

DEALER IN

## NATIVE LUMBER

More than
50 VARIETIES
kept in stock

BLINDS, SASH, DOORS, ETC., MADE BY

Up-to-date Machinery.

We manufacture all kinds of Furniture, Office Fixtures, Show Windows, Store Furnishings, Desks, etc., etc.

ESTIMATES FURNISHED ON APPLICATION.

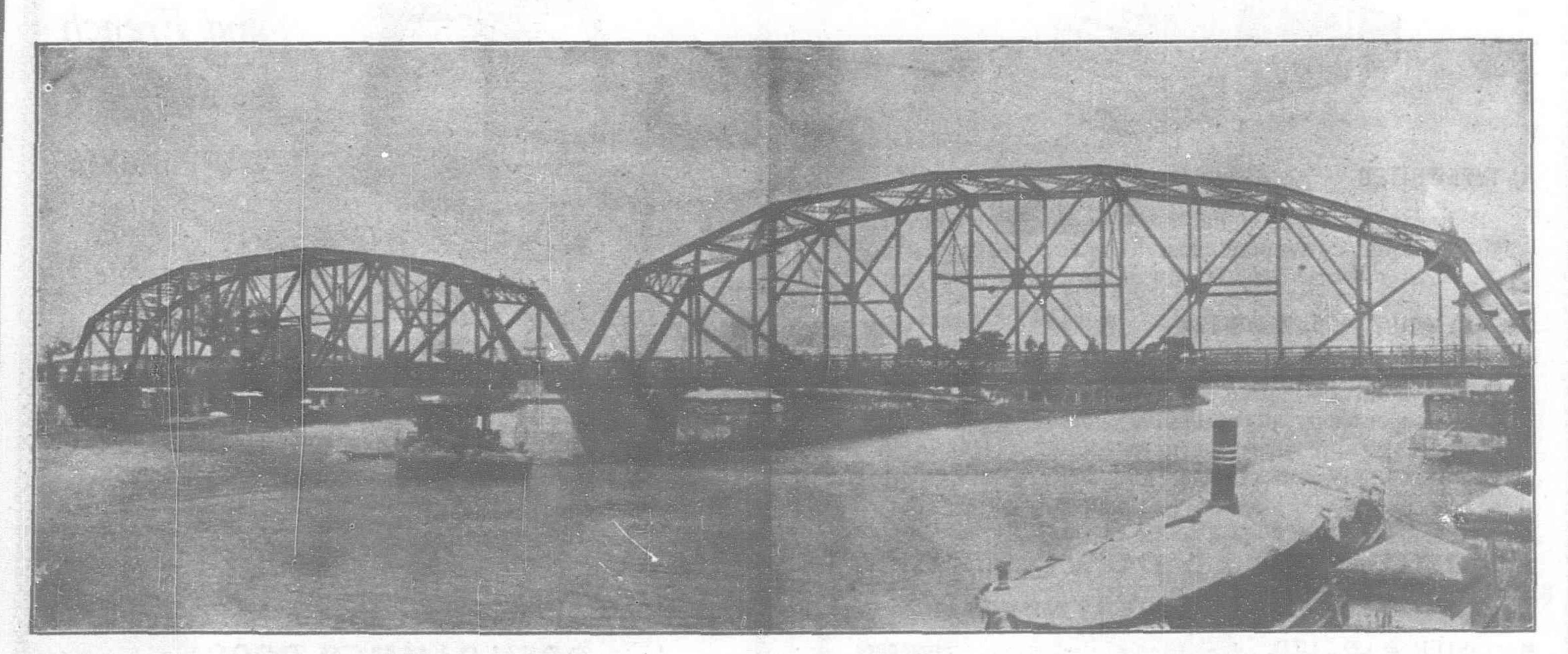
San Miguel Saw Mill and Factory

Manila, P. I.

## Atlantic, Gulf and Pacific Company

(Incorporated)

ENGINEERS AND CONTRACTORS



AYALA BRIDGE OVER THE PASIG RIVER, MANILA, BUILT BY THE ATLANTIC, GULF & PACIFIC CO.

MANILA OFFICES:

Corner Malecon Drive and Pasig River

OFFICES:

New York

San Francisco Manila A PRODUCT OF THE NUTRITIOUS GRAZING MEADOWS OF SWITZERLAND



# Bear Brand

FRESH MILK

A PURE COW'S MILK

PUT UP IN PINT

AND QUART TINS

IT IS STERILIZED

SPRUNGLI & CO

28 CALLE DAVID

IMPORTERS

MANILA, P. I.



THIS IS THE

\_\_OF\_\_

## Val Brenne

PURE FRESH MILK

Its Purity Is Absolutely Guaranteed

A Rich, Delicious, Pure Milk



GRAND PRIX PARIS 1990
MÉDAILLE D'OR PARIS 1898.1899

HORS CONCOURS MEMBRE DU JURY, PARIS 1899



MARQUE DÉPOSÉ

PUT UP IN BOTTLES AND TINS INSURING PERFECT AND INDEFINITE
PRESERVATION

FOR SALE AT

"EL GLOBO"

LUENCO & MARTINEZ

"LA ISLA DE CUBA"

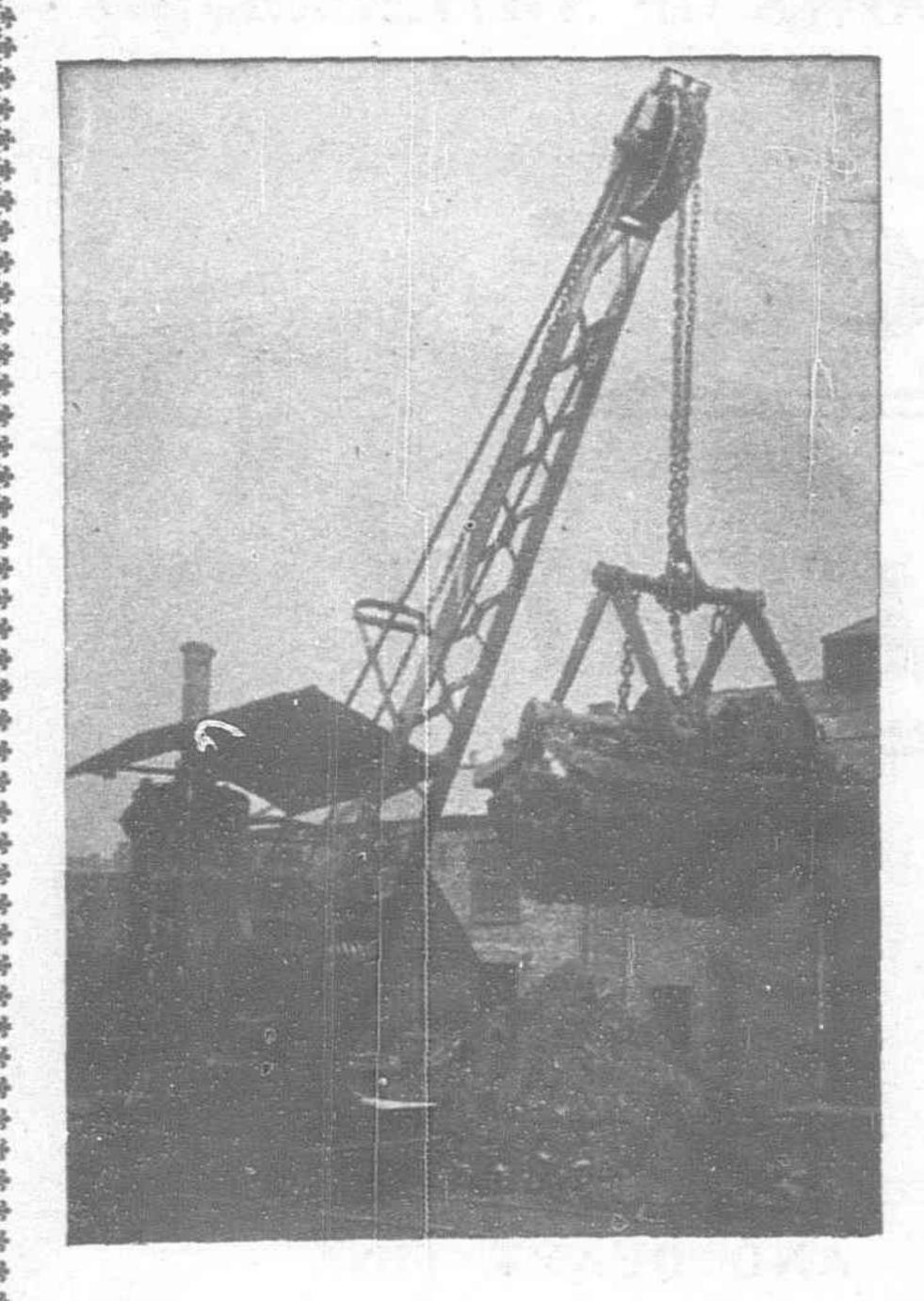
ANICETO RUIZ, S. en C.

56-58 Carriedo

MANILA

214 Palacio

MANILA



## Priestman Brothers, Limited

LONDON OFFICE: 32 VICTORIA STREET, WESTMINSTER, S. W.

## Dredgers, Excavators and Elevators

PRICES AND FULL PARTICULARS ON APPLICATION TO

DICKESON, JONES & CO., Shanghai

Agents for China Cable Address: "NOTLIAR" SHANGHAI



## Dickeson, Jones & Co. 77 SZECHUEN ROAD, SHANGHAI

Merchants, Commission Agents and Manufacturers' Agents

## DEPARTMENTS

Piece Goods

Metals

Lumber

Building Materials

Miscellaneous Indents

Cable Address:

"NOTLIAR"

SHANGHAI

Head Office

MANCHESTER

REPRESENTING OVER 30 FIRST CLASS BRITISH MANUFACTURERS OF ALL CLASSES OF GOODS

Offices and correspondents

LONDON

BIRMINGHAM

NEW YORK

SAN FRANCISCO

PORTLAND, ORE.

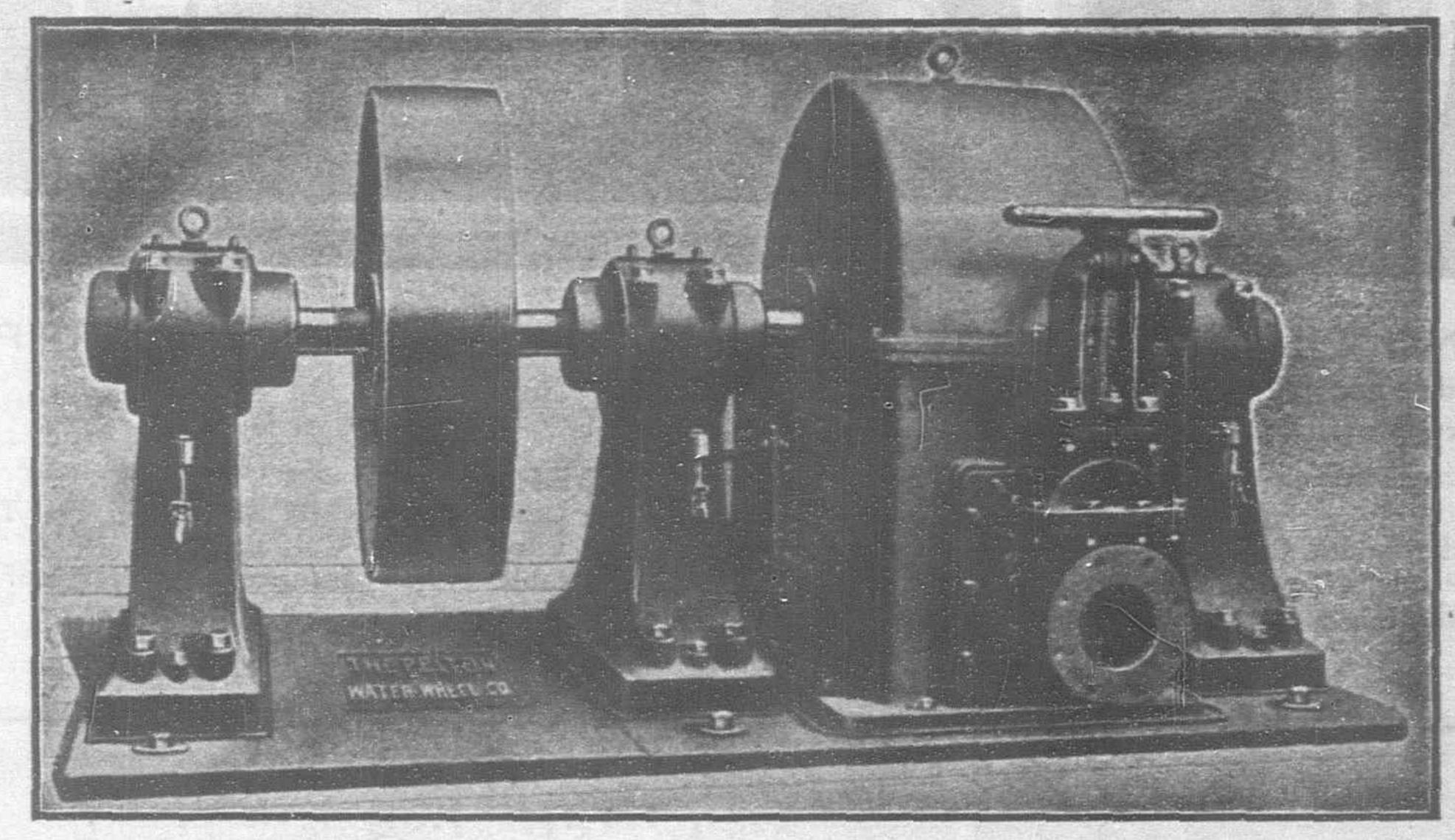
HAMBURG

VIENNA

## CHEAP POWER FOR THE HACIENDA

THE PELTON WATER WHEEL

WILL SOLVE THIS PROBLEM. A SMALL STREAM AND A FEW HUNDRED FEET OF PIPE IN CONNECTION WITH THIS WHEEL MAY AFFORD ALL THE POWER YOU REQUIRE



PELTON WHEELS ARE ADAPTED TO TRANSMISSION.

MINING

AND ANY PURPOSE REQUIRING POWER. SEND FOR FULL CATALOG ON WATER POWER DEVELOP-

MENT

Cable Address: "PELTON" San Francisco

Codes: A. B. C. Lieber: PELTON

MANILA, P. I.

Grant & Co., Ltd. THE PELTON WATER WHEEL CO.

19TH AND HARRISON STS., SAN FRANCISCO, CAL., U. S. A.

Kerkoven & Mazel TJIBADAK-JAYA

# 

TANDUAY DISTILLERY HEMP AND SUGAR MERCHANTS

IMPORTERS AND EXPORTERS

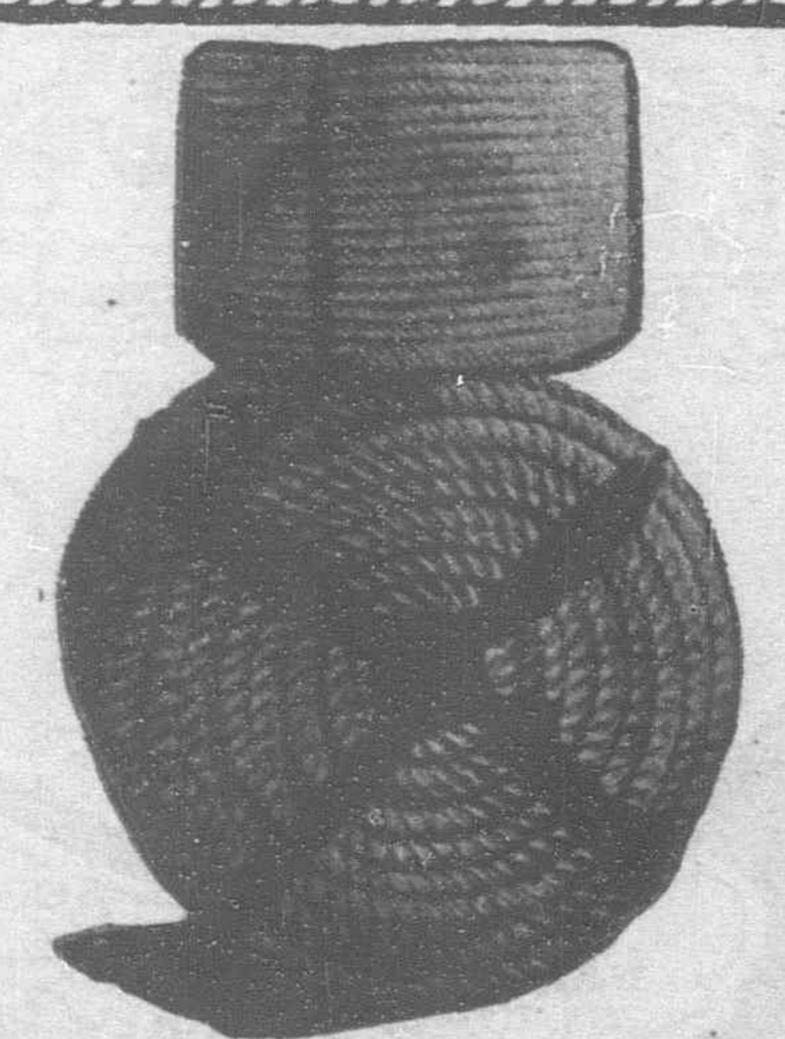
OWNERS OF HEMP AND SUGAR ESTATES

SHIP CHANDLERS. DIRECT IMPORTATION

Branches in

ILOILO SORSOGON GUBAT and MATNOG

BALUT PURE MANILA ROPE FACTORY



SHIP OWNERS AND CONSIGNEES

Steamers:--

SORSOGON VIZCAYA ANTONIO MACLEOD VENUS ELCANO CHURRUCA F. PLEGUEZUELO CHICAGO MAYON

ILOILO SUGAR MERCHANTS FOUNDERS AND MACHINISTS

YNCHAUSTI & CO., Manila, P. I

KOBE

IMPORT AND EXPORT MERCHANDISE, COMMISSION AND SHIPPING AGENTS Post Office Box:

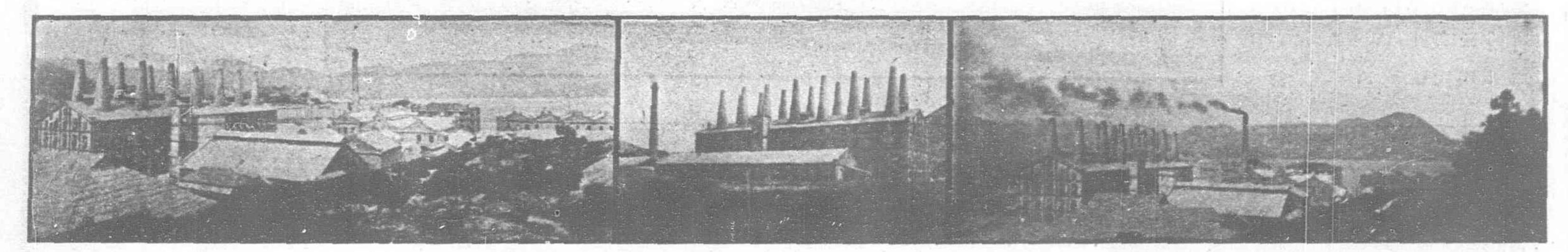
Telegraphic Address: "KEECHONG," Hongkong.

GENERAL MANAGERS OF

The China Light & Power Co., Ltd., Hongkong The Green Island Cement Co., Ltd., "

The Hongkong Rope Mfg. Co., Ltd., Hongkong The China Provident Loan & Mortgage Co., Ltd., Hongkong

The China and Manila Steamship Co., Ltd., Hongkong The Canton Land Co., Ltd. Equitable Life Assurance Society of the United States, Hongkong



WORKS OF THE GREEN ISLAND CEMENT COMPANY, LIMITED, HONGKONG

GLAZED

STONEWARE

HOUSE

DRAIN

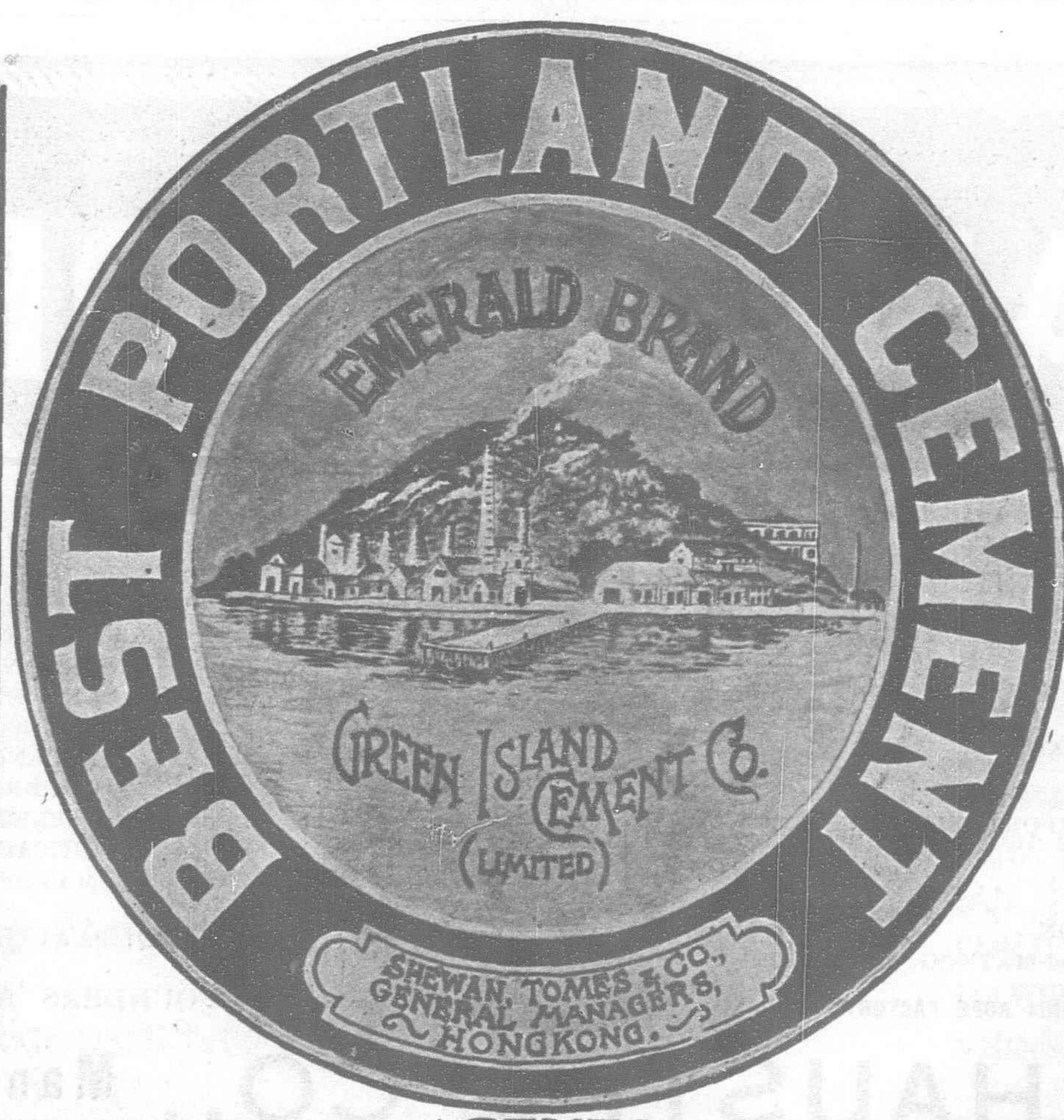
AND

SEWER PIPES

AND

FITTINGS

IN STOCK



GLAZED

No. 131B.

PAVING BRICKS

TILES

FIRE

BRICKS

AND

FIRE CLAY

AGENTS:

Manila, P. I. Wm. H. Anderson & Co. Shanghai

Shewan, Tomes & Co. Shewan, Tomes & Co.

Jardine Matheson & Co.

McAlister & Co., Ltd.

Turner, Morrison & Co. E. Spinner & Co. Rangoon Geo. Gillespie & Co.

AGENTS FOR

North British & Mercantile Insurance Co. Law Union & Crown Insurance Co. Yorkshire Fire and Life Insurance Co. Fireman's Fund Insurance Co. (Fire only.) Insurance Company of North America
The Chinese Engineering and Mining Company, Ltd.
Shanghai Pulp and Paper Co., Ltd.
Canton & Hongkong Tug, Lighter & Ferry Co., Ltd.
Tacoma Grain Co.

## CHINA AND MANILA S. S. COMPANY, LIMITED

Jenkins & Co.'s "Shire" Line of Steamers

The Yangtsze Insurance Association, Ltd.

The Hongkong Tramways Electric Company, Ltd. The American China Development Co.

Marke Wood's Line of Steamers

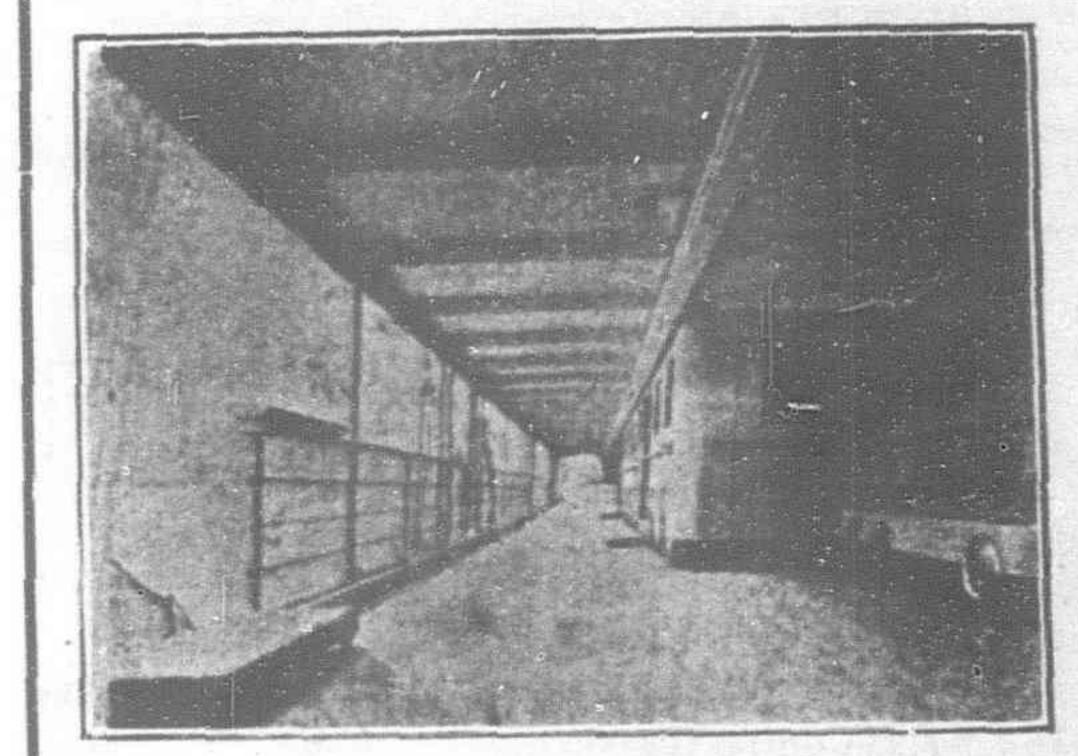
The Yangtsze Valley Company, Ltd.

World Marine Insurance Co.

Reliance Marine Insurance Co.

Union Marine Insurance Co., Ltd.

Batavia Sea and Fire Insurance Co.



UPPER PROMENADE DECK.

## HONGKONG TO MANILA

THE NEWEST, FASTEST, AND MOST LUX-URIOUS STEAMERS PLYING BETWEEN HONGKONG AND MANILA. BUILT IN 1901, ALL LATEST IMPROVEMENTS-ACCOMMO-DATION AMIDSHIPS - ELECTRIC LIGHTS, FANS, ETC: : : : : : :

STEAMERS

## "ZAFIRO" "RUBI"

WEEKLY SAILINGS. ONLY TWO NIGHTS AT SEA

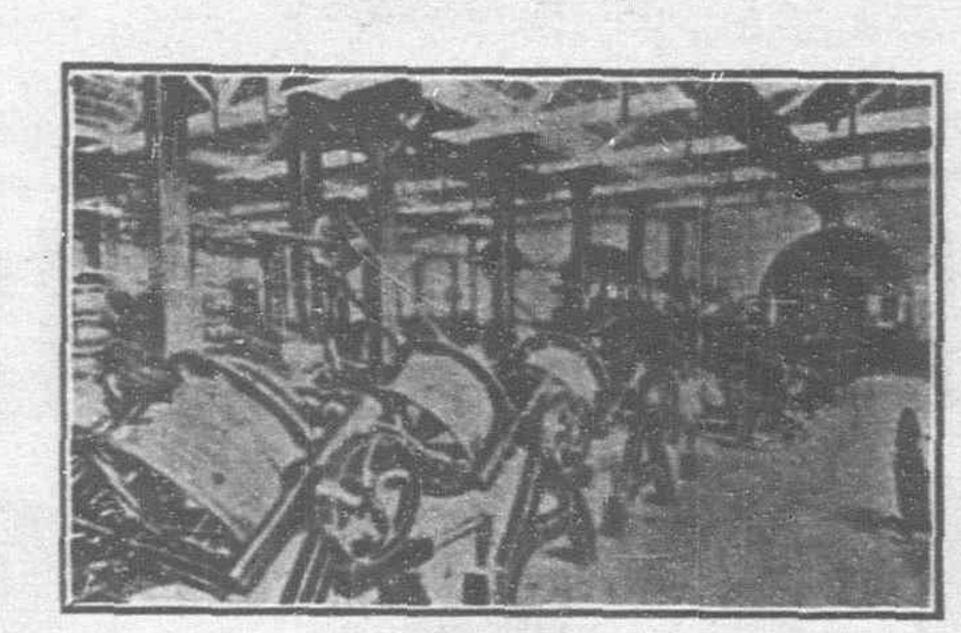
SHEWAN, TOMES & CO .- GEN. MGRS. HONGKONG

AGENTS

WARNER, BARNES & CO., LD. MANILA

TAIT & CO.

## HONGKONG ROPE MANUFACTURING COMPANY, LTD.



ROPE FACTORY.

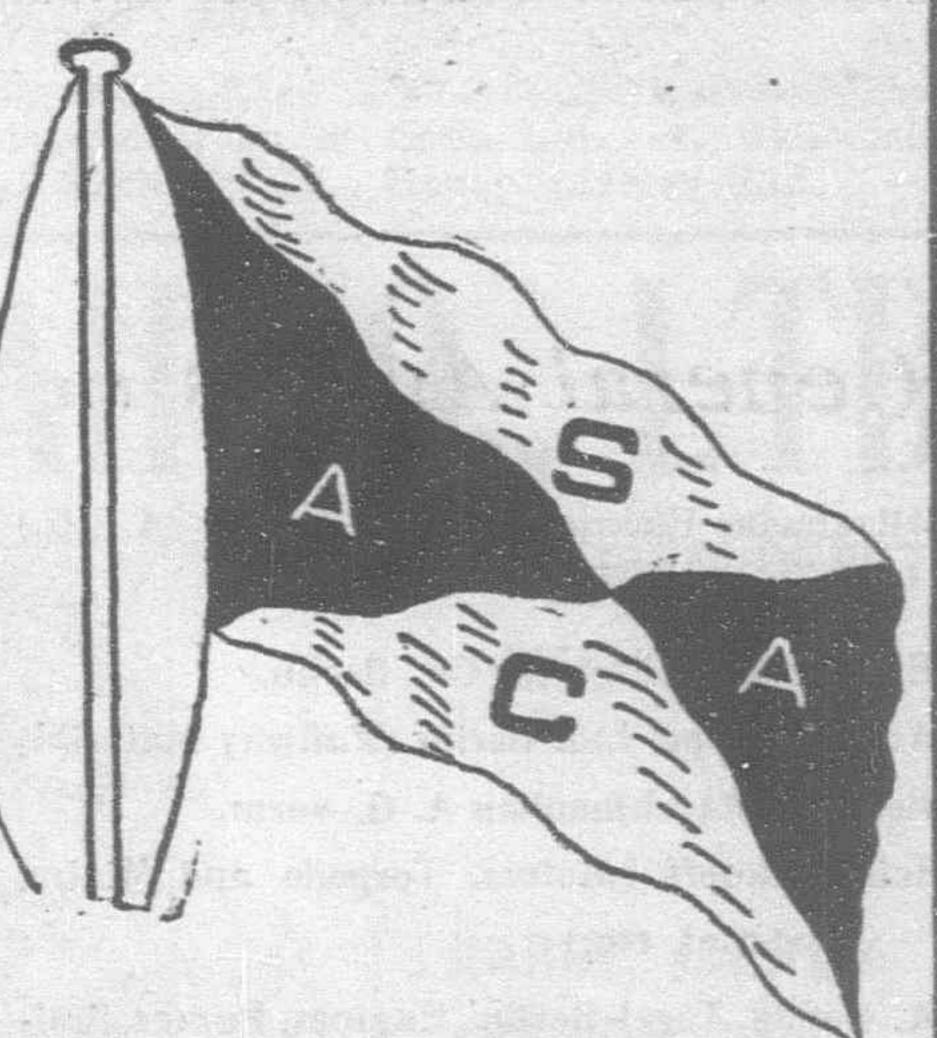
## PURE MANILA ROPE

MADE FROM ONLY THE BEST WHITE MANILA HEMP.

USED BY THE BRITISH NAVY ON THE CHINA STATION, AND BY THE MAIL AND LEADING LINES OF STEAMERS

> SHEWAN, TOMES & CO. GENERAL MANAGERS

## AMERICAN ASIATIC STEAMSHIP CO.



REGULAR MONTHLY SAILINGS VIA SUEZ CANAL, BETWEEN

NEW YORK, ADEN, STRAITS SETTLE-MENTS, MANILA, CHINA AND JAPAN, RETURNING TO NEW YORK BY THE SAME ROUTES

THROUGH BILLS OF LADING ISSUED, AND RATES QUOTED TO ALL POINTS, INSURANCE AT LOWEST RATES, SHIPMENTS TO OR FROM INTERIOR POINTS GIVEN THE MOST CAREFUL ATTENTION.

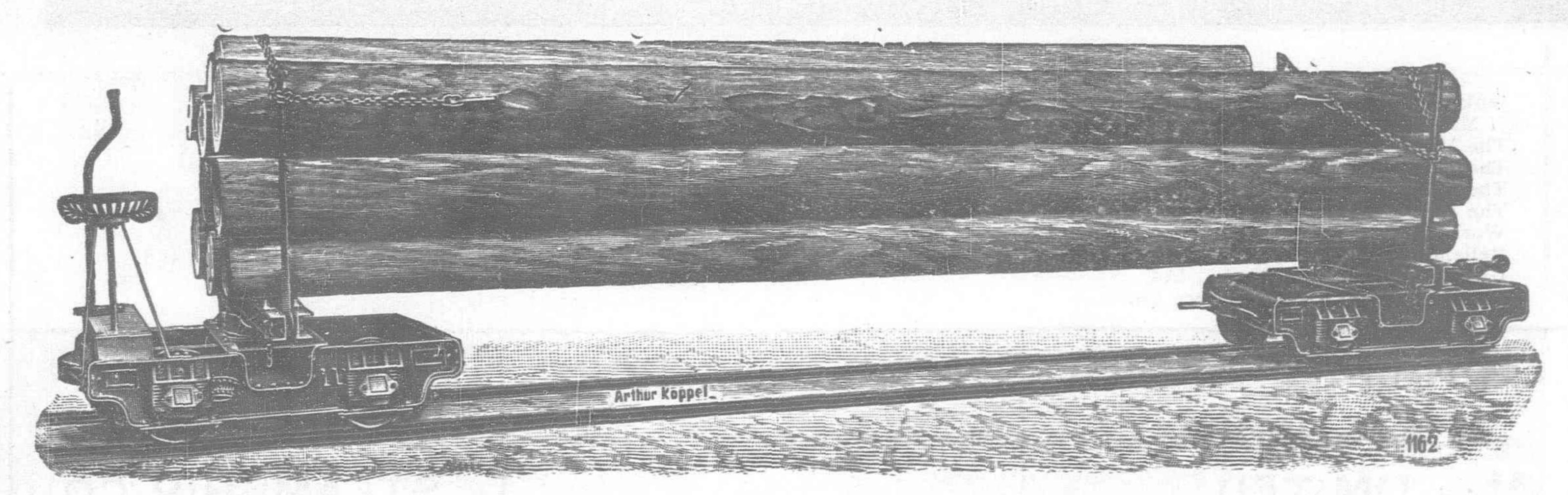
FOR RATES AND PARTICULARS APPLY TO AMERICAN-ASIATIC S. S. CO. 10 AND 12 BROADWAY NEW YORK

SHEWAN, TOMES & COMPANY GENERAL AGENTS HONGKONG

WARNER, BARNES & CO., LTD. MANILA

# Arnhold, Karberg & Co.

Shanghai, Hongkong, Canton, Hankow, Wuhu, Chungking, Tientsin Tsingtau, Newchwang.



LARGE STOCK OF LIGHT RAILWAY MATERIAL .- WOODWORKING MACHINERY .- GASOLINE ENGINES .- FIBRO CEMENT ROOFING SLATES .- STEAM PUMPS

## General Agents for

Allgemeine Elekricitaets Gesellschaft (A.E.G.) Berlin.

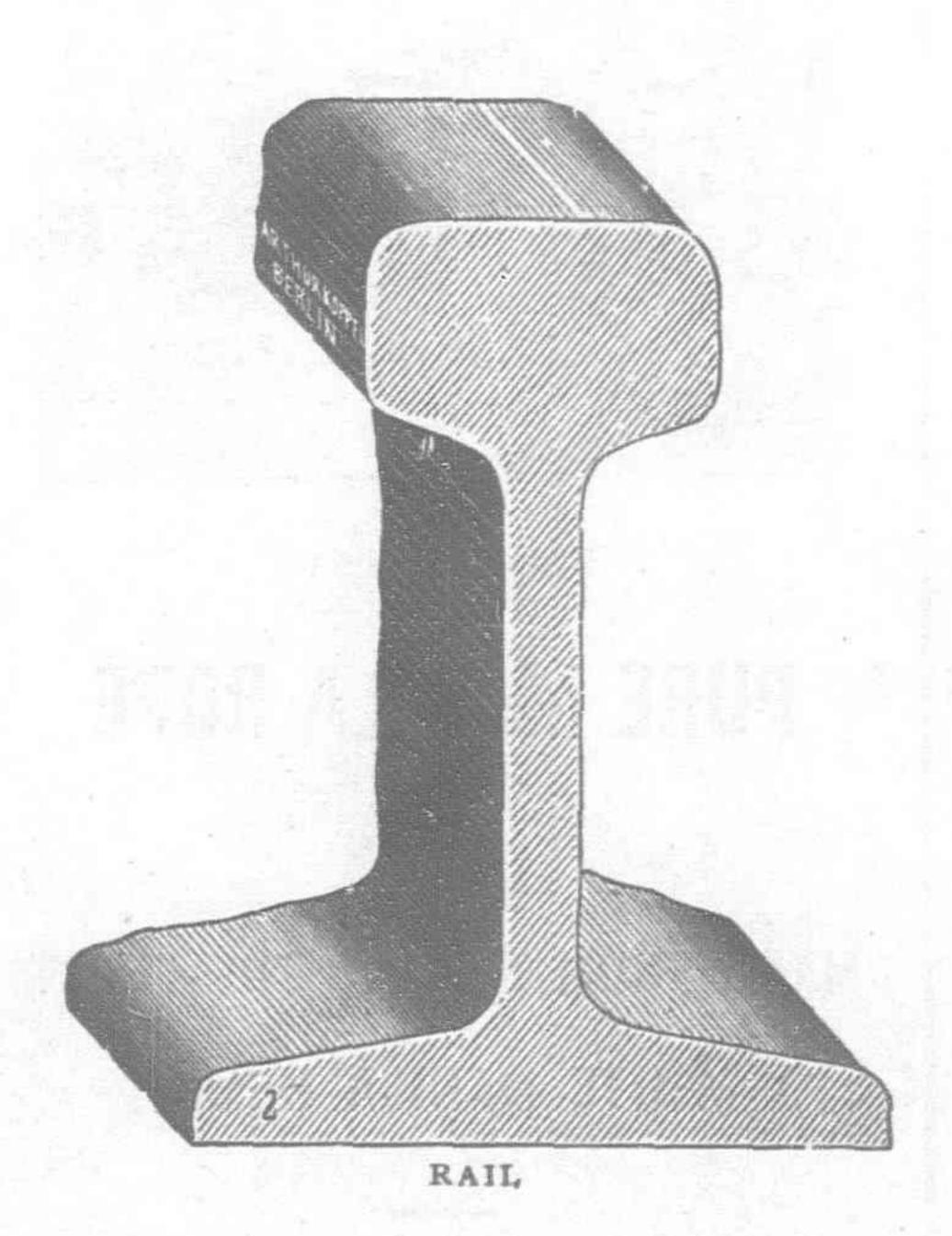
Electric Train Lighting Co. Berlin.

Arthur Koppel Ltd. Berlin (Railway Material) Berliner Maschinenbau A. G. vorm.

Schwarzkopff (Motors, Torpedo and Mining Material, etc.)

A. Borsig, Tegel-Berlin (Engines, Pumps, Boilers, Ice Machines, etc.)

Deutsche Waffen and Munitions fabriken. Karlsruhe (Arms, Mint Factories, etc.) Waffenfabrik Mauser A. G. Oberndorf-Neckar Arms Works.



Soda-Werke A. G. Pilsen

Arms Works, Material for Arsenals.

Ludw. Loewe A. G. Berlin (Machine Tools)

General Agents for

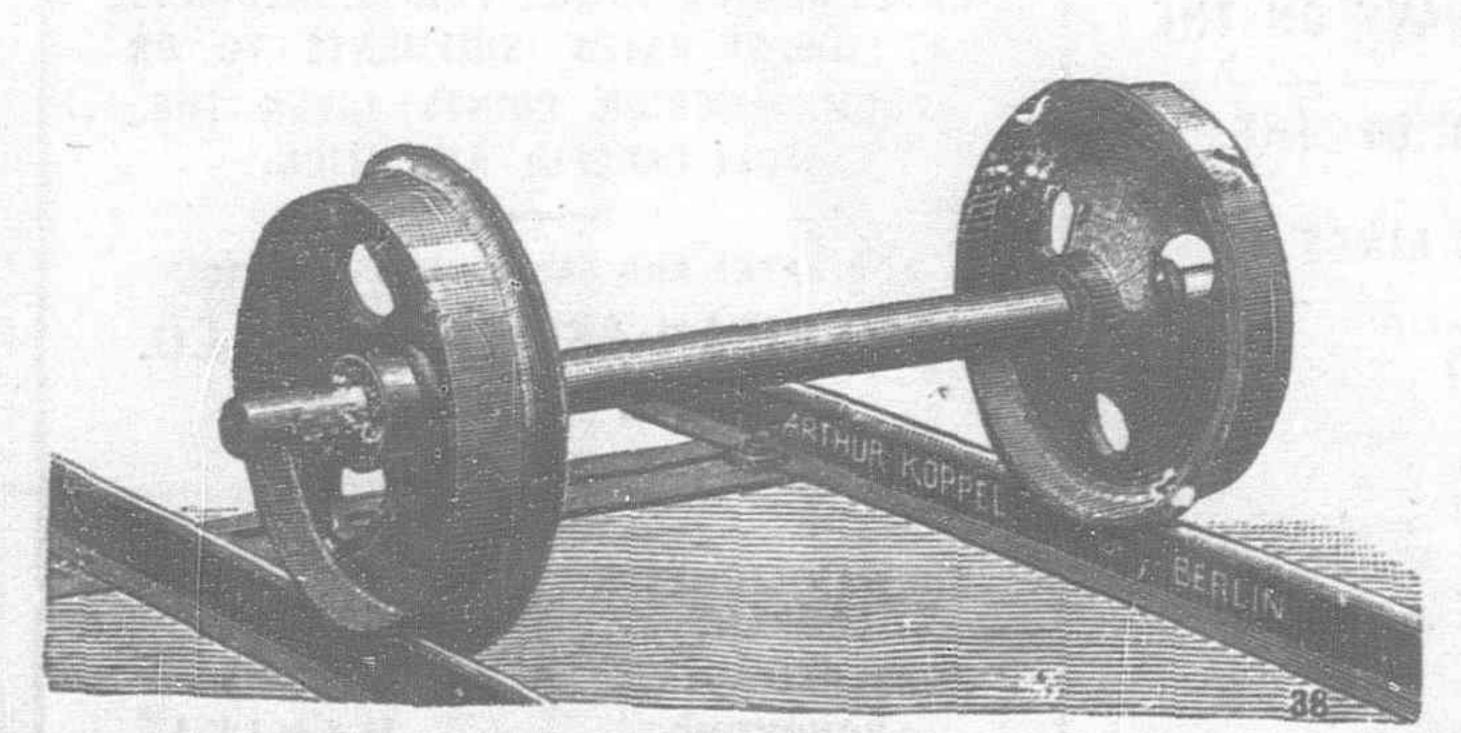
Stettiner Maschinenbau A. G. Vulcan (Marine Contractors)

Jonas and Colver Ltd. Sheffield (Specialities for Arsenals)

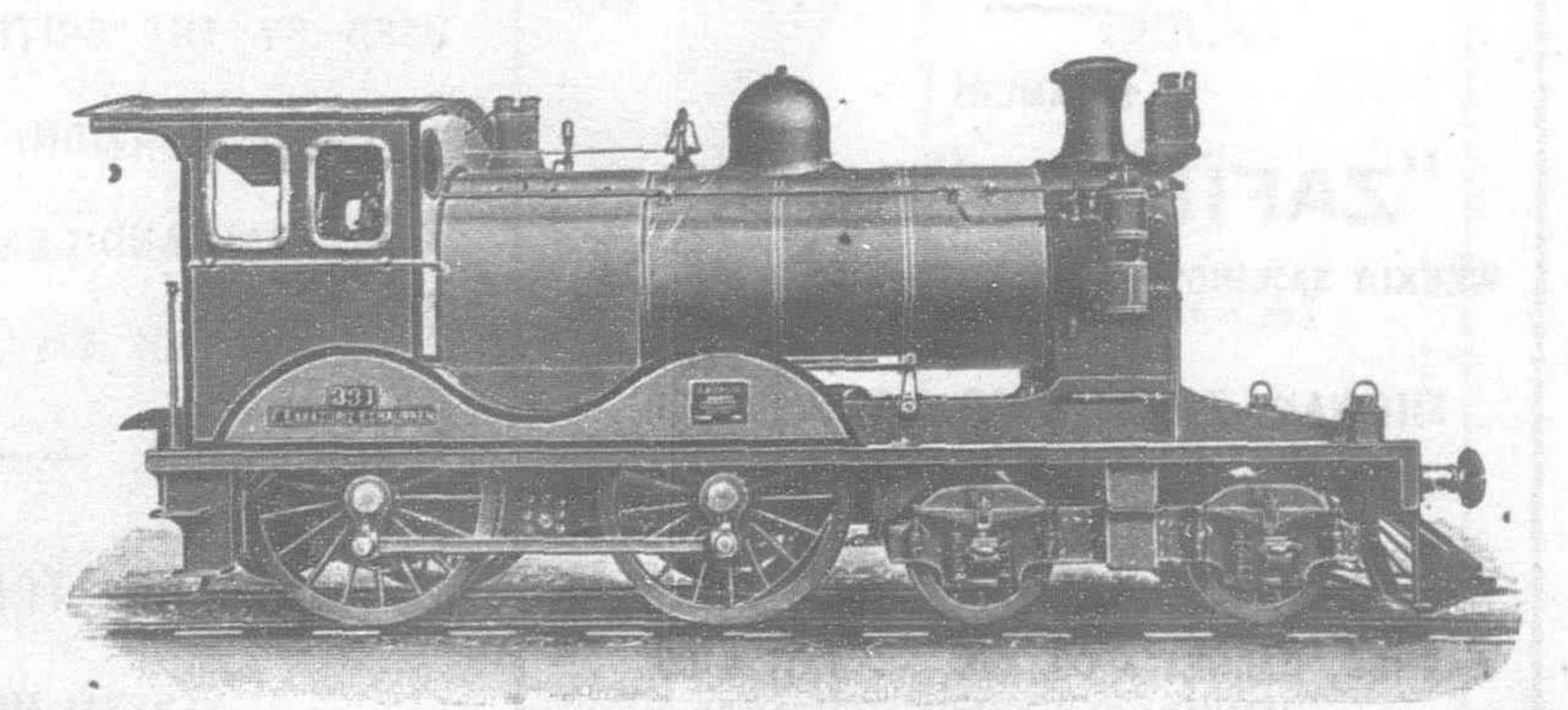
Asa Lees and Co., Ltd., Oldham (Equipments for Cotton Mills)

Carl Meissner Hamburg (Motor Boats) Rendrock Powder Co., New York (Explosives, Racarock)

General Managers of the New Engineering and Shipbuilding Works, Ltd., Shanghai.



RAILWAY WHEELS & AXLE



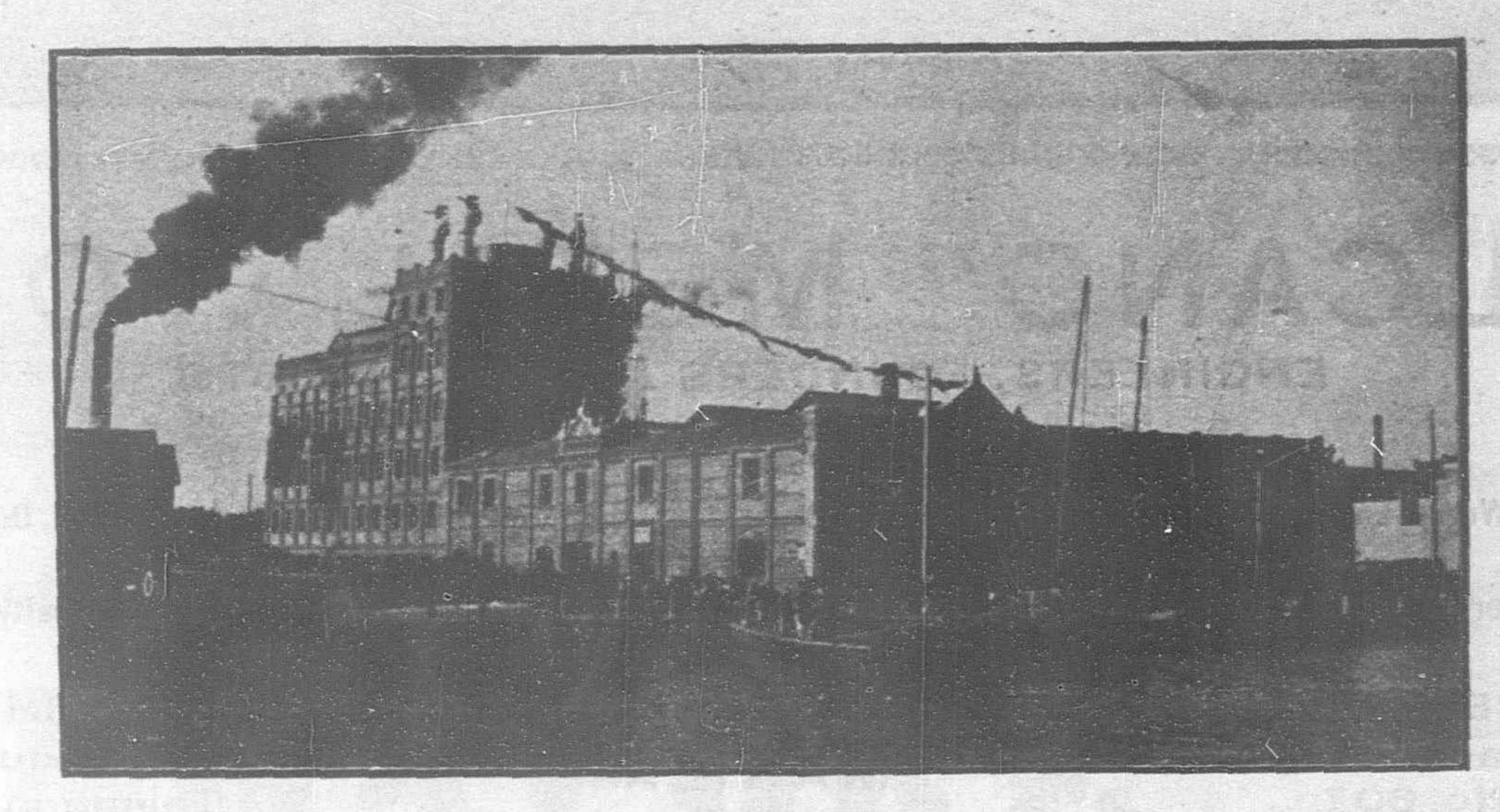
RAILWAY LOCOMOTIVE

## JARDINE, MATHESON & CO.

#### MACHINERY DEPARTMENT

PEKING ROAD, SHANGHAI

ENGINES, BOILERS, PUMPS AND ELECTRICAL MACHINERY FOR ALL PURPOSES ENGINEERING AND ELECTRICAL SUPPLIES. IN STOCK



YUEN CHUNG FLOUR MILL, SHANGHAI-MACHINERY FURNISHED AND INSTALLED-JARDINE MATHESON & CO.

SOLE AGENTS FOR:-Gwynnes Ltd., Marshall Sons & Co. Ltd., E. Scott & Mountain Ltd., Merryweather & Sons Ltd., A. Ransome & Co. Ltd., J. Meredith Jones & Sons, Kitson Light Foreign Supply Co., Chas. Price & Co., Henry Livesey Ltd.

## MILLAR'S KARRI AND JARRAH CO., LTD.

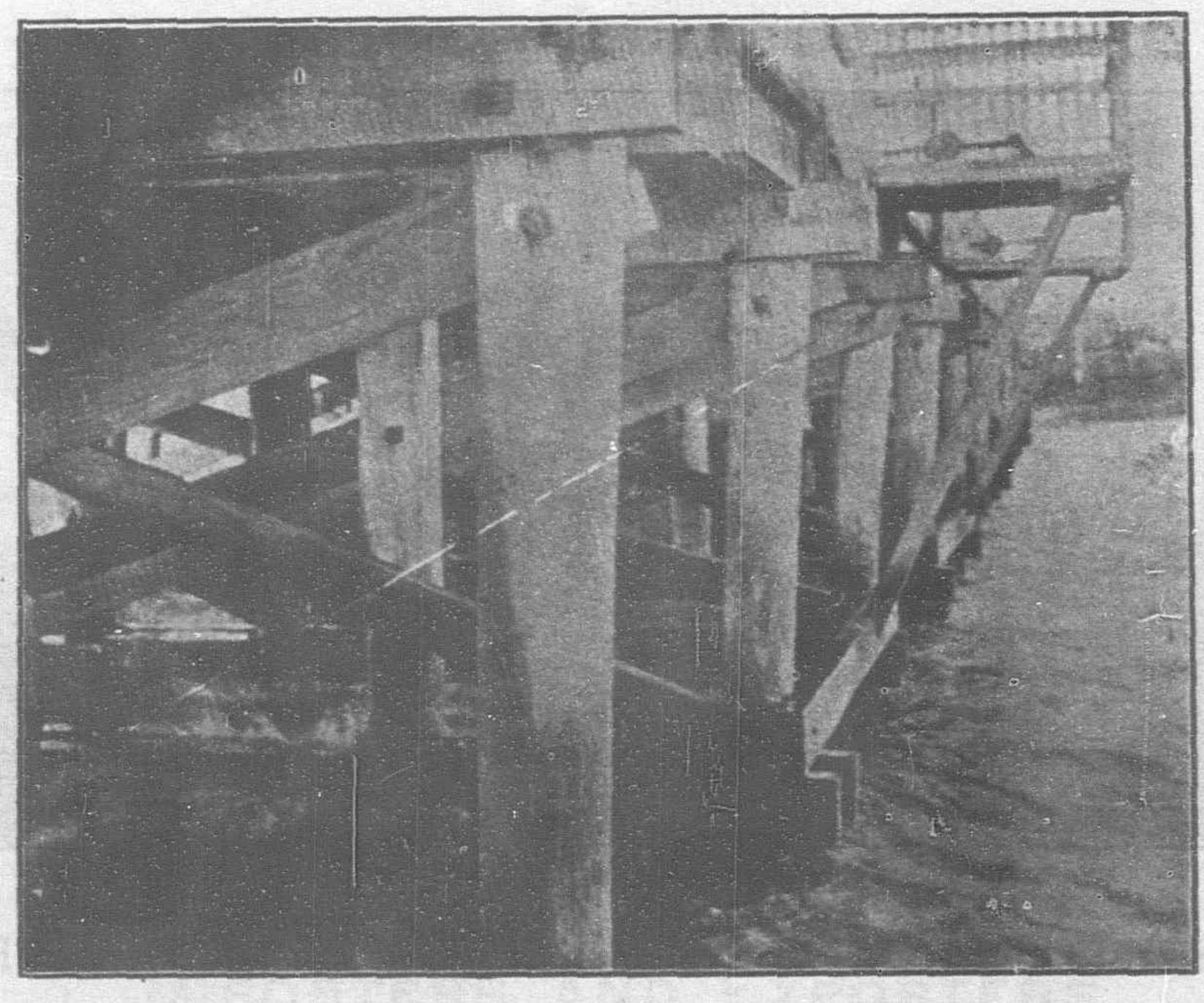
KARRI

JARRAH

COMBINE GREAT STRENGTH
WITH DURABILITY AND ARE
IMPERVIOUS TO DESTRUCTIVE
INSECTS AND DAMP

SPECIALLY ADAPTED FOR
ALL KINDS OF ENGINEERING
AND CONSTRUCTION WORK
CABINET, ART WORK AND
WOOD PAVING

LARGE STOCKS CARRIED
RAILWAY SLEEPERS, PILES
WHARF AND BRIDGE TIMBERS,
TELEGRAPH POLES, FLOORING,
PAVING BLOCKS, ETC.



WHARF BUILT OF JARRAH PILES FROM MILLAR'S KARRI & JARRAH CO., LTD.

EWO TIMBER DEPOT

KARRI, JARRAH
OREGON PINE
REDWOOD
BANGKOK TEAK
SINGAPORE
HARDWOODS

SAW MILL SUPPLYING
ANY SIZES AND
LENGTHS.

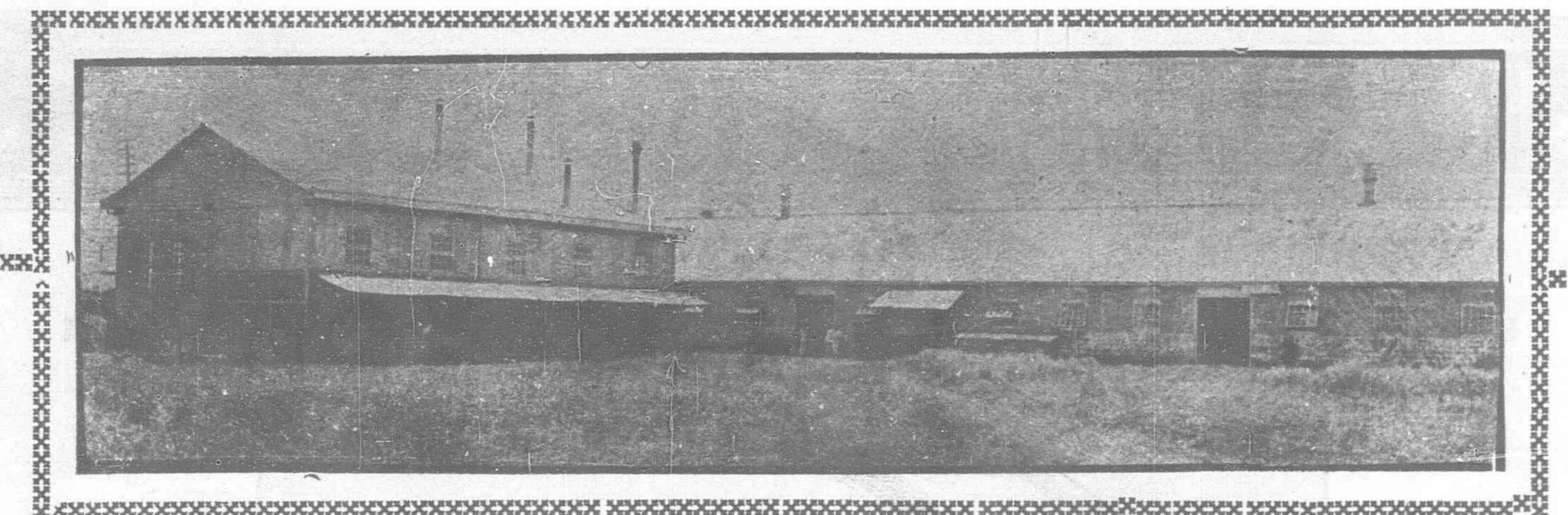
JARDINE, MATHESON & CO.

AGENTS

HONGKONG

CHINA

JAPAN



## "YULCANO" METAL WORKS

ENGINEERS, FOUNDERS AND MACHINISTS

SHEET METAL WORKS

Our New Works and Foundry Are Equipped to Construct and Repair Machinery and Boilers of all Descriptions

Cornices, Gutters, Ridges, Rainpipes, Metal Ceilings and Ornamental Metal Work a Specialty Special Can Making Machinery—Nickel Plating

OFFICES General Solano, 424 P. O. Box, No. 607

MANILA

SHOPS Tanduay, 146 Telephone, No. 324

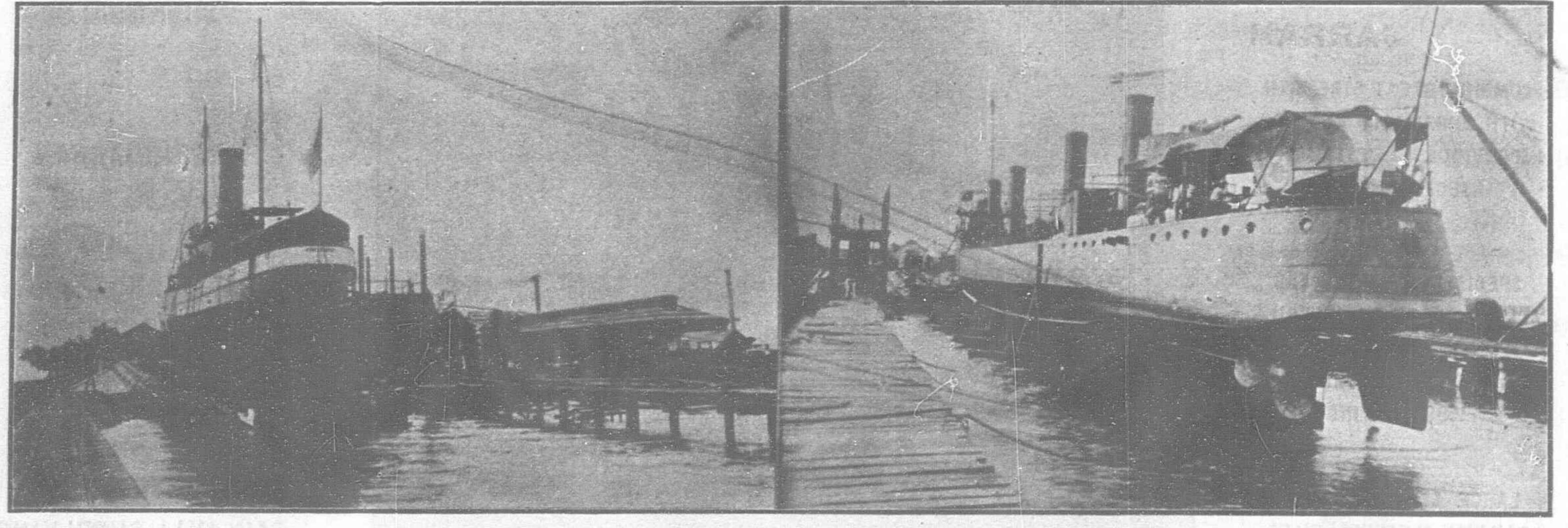
R. REYES

Manila

## EL VARADERO DE MANILA

(INCORPORATED)-Established in 1884

Codes Used
A B C, 4th Edition
WESTERN UNION
and A 1



Our Slipway is equipped with an up-to-date plant, and carries a large stock of material for the repair of ships, engines and boilers.

U. S. S. "PISCATAQUA" AND TORPEDO BOAT "DALE" ON SLIPS

SHIPYARDS and DOCKS located at the sheltered harbor of Canacao, Cavite, P. I.

SLIP No. 1. Length 320 feet capacity 2400 gross tons SLIP No. 2. " 210 feet capacity 1200 gross tons

RAFAEL REYES
General Manager

Director of Works,
MR. A. YOUNG

P. O. Box

202

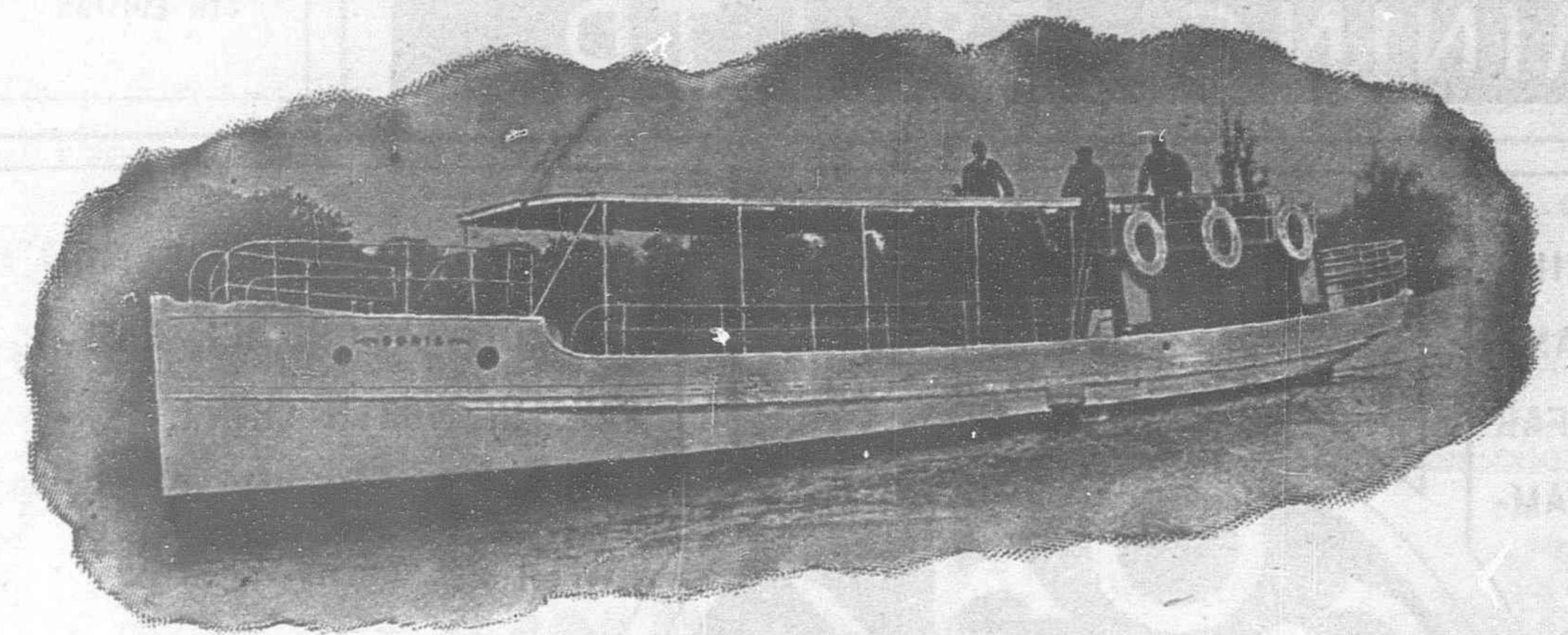
THE MANILA SLIP COMPANY

MANILA, P. I.

HEAD OFFICE: Manila, P. I.

# largreaves & l

SHIPBUILDERS AND STEEL CONSTRUCTIONAL ENGINEERS



60 FEET MOTOR PASSENGER BOAT

"Brooke" Motor Boats

> HIGH CLASS RELIABLE PRODUCTIONS

Write for Particulars

Sole Agents for J. W. Brooke & Co., Ltd., England

Cable Address: "HARGREAVES SINGAPORE"

RICHARDSON, FINDLAY & CO. Glasgow, Scotland.

## FINDLAY & CO.

FINDLAY, RICHARDSON & CO. Kobe and Yokohama, Japan.

MANILA, P. I.

HARDWARE

MACHINERY

CEMENTS

AUSTRALIAN AND CALIFORNIA LUMBER

Agents for

THE NORTHERN ASSURANCE

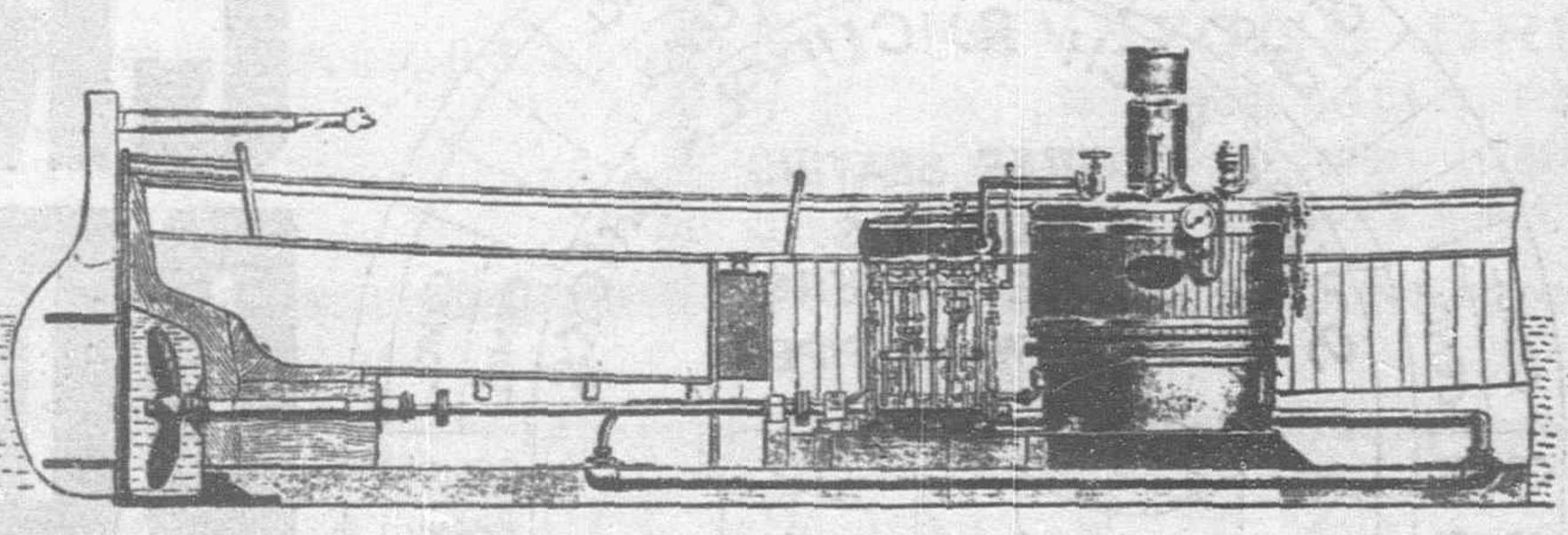
COMPANY

NORTHERN BRITISH AND

MERCANTILE INS. CO.

THE HOLD IN THE GATABLE WAS ASSESSED. 

ENGINEERS AND CONTRACTORS



LAUNCH ENGINES AND BOILERS

IMPORTERS AND EXPORTERS

MILNER'S SAFES

PERRY'S SAFES

FORCITE POWDER CO.'S

EXPLOSIVES

WHITE BROS. CEMENT

ALSEN CEMENT

Agents for

THE PALATINE INSURANCE

COMPANY, LIMITED

THE LONDON INSURANCE

CORPORATION

Sole Agents for McONIE HARVEY & CO. High Class Sugar Machinery

HEAD OFFICES IN CHINA MEADOWS ROAD, TIENTSIN

## CHINESE ENGINEERING AND MINING C2. LTD.

TELEGRAPHIC ADDRESS

"MAISHAN"

CODES: A. I., A. B. C.

5TH EDITION

OF KAIPING COAL IS SUPERIOR TO ANY BEING MINED IN THE FAR EAST. SUITABLE FOR STEAM-ING AND OTHER PURPOSES

OUTPUT OVER ONE MILLION TONS DER

LOCOMOTIVES ON ALL RAIL-WAYS IN NORTH CHINA. EX-TENSIVE BUNKERING DONE WITH STEAMERS : : :

KAIPING COKE EQUAL TO BEST DURHAM COKE. PACK-ED IN BASKETS AND DELIVER-CONDITION IN GOOD PORT IN FAR EAST : : : :

THE COMPANY HAS FACIL-ITIES FOR LOADING COAL

AT THE ICE FREE

CHIN WANGTAO WITH WHICH IT IS

IN RAILWAY COMMUNICATION : : : :

82 CUP CENC BOILER SEATING BLOCKS FLUE COVERS STONEWARE PIPES CEMCL CEMCL CEMCL CEMCL CEMCL CEMCL CEMCL CEMCL TILES OF ALL KINDS CEMCL

SHANGHAI BRANCH OFFICE, No. 1 JINKEE ROAD

CHEFOO: ANZ & CO. WEI-HAI-WEI: LAVERS & CLAR

CEMCL

CEMCL

TSINGTAU: O. RITTHAUSEN & CO. HONGKONG: SHEWAN, TOMES & CO. HANKOW: BELGIAN TRADING CO.

CEMCL

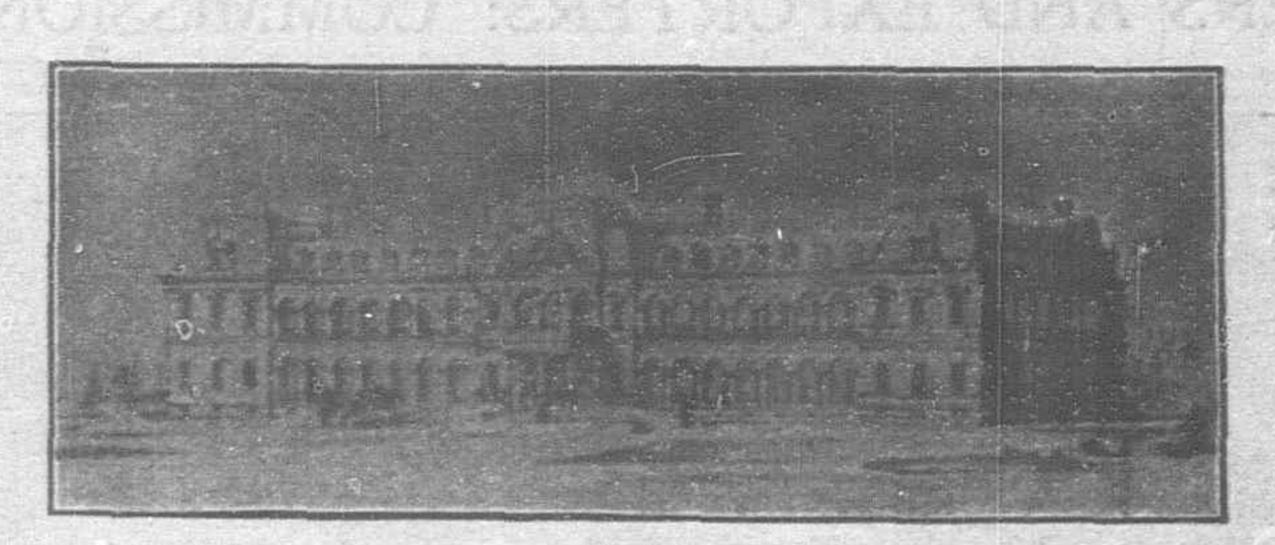
NEWCHWANG: BUSH BROS. PEKING: J. REDELSPERGER.

## The Imperial Hotels, Limited

(Imperial Hotel and Villa & Metropole Hotel) : :

The First Class Hotels of the Capital: :::

TOKYO, JAPAN



Patronized by the Imperial Household and Foreign Embassies: : : : :

CARL FLAIG,

General Manager



In North America, South America and Central America-on all kinds of structures-from the temporary shea to the big business block : : : : : : : :



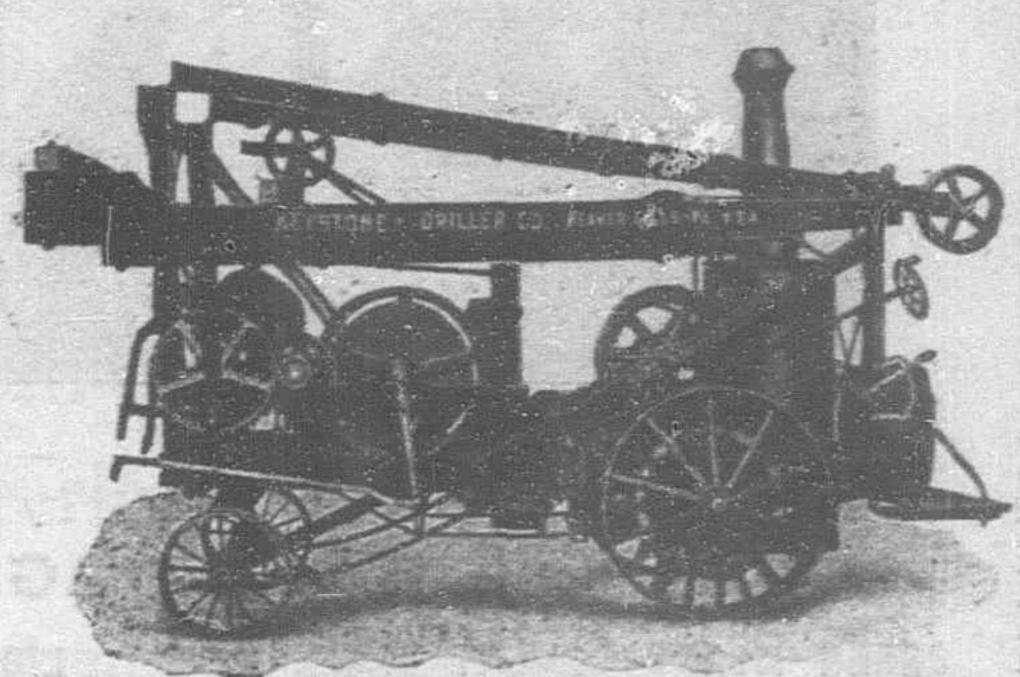
Is fast taking the lead in popularity. Rain, sun, wind, weather or climate has no effect upon it. That wear proof surface of hard flint sands-adds life to any roof. No repair bills or paint expense. We will gladly send you a free copy of the "Roof Book." It tells all about the best roofings and building papers. : : : : : : : : :

PIONEER ROLL PAPER CO., Los Angeles, Cal., U.S. A.

We desire a progressive dealer to represent us in every town and city

We Make The Standard

Line of



Water Well Drillers, Traction and Non-traction, for all depths up to 1000 feet-Catalog No. 1. Mineral Prospecting & Placer Gold Testing Machines and Equipments-Catalog No. 2.

Percussion Core Drilling Attachments, for Coal Testing-Catalog No. 2 B. Portable Oil Well Rigs, for depths of 1000 to

2500 feet-Boiler on separate truck-Catalog Contractor's Blast Hole Drillers for work in

heavy R. R. Cuts.

Canal Excavation, River and Harbor Exploration, Etc.-Catalog No. 4.

(Any or all of these Catalogs free on request) AGENTS WANTED.

We desire to place two or three agencies in the Far East, with reputable Machinery Dealers.

KEYSTONE DRILLER CO. BEAVER FALLS, PA., U. S. A.

CABLE ADDRESS: "DRILLER"

CODES:- LIEBER'S, WESTERN UNION, AND A. B. C. 4TH AND 5TH EDITIONS

POSTAL ADDRESS: 41 URBIZTONDO

## FRED WILSON & CO.

CODES USED:-AI., A. B. C. (5TH ED.) LIEBER'S AND ENGINEERING.

ENGINEERS

SOLE AGENTS IN THE PHILIPPINE ISLANDS FOR

MARSHALL SONS & CO., Makers of High Class Steam Engines | THE ENGLEBERG HULLER CO., Rice Milling, etc. and Boilers, Gold Dredgers, Thrashing Machinery

OHN McNEIL & CO., Manufacturers of Rice and Sugar Milling JOHN B. ADT, Tobacco Machinery Machinery of the Highest Grade

THE LIDGERWOOD MANUFACTURING CO., Pile Drivers and Hoisting Engines

THE BONSACK PATENT Cigarette Machine

GEO. PRICE, Bankers' Engineer, Fire Proof Safes, etc.

ESTIMATES ON APPLICATION

MANILA, P. I.

SANTA CRUZ BRIDGE

## WM. H. ANDERSON & CO.

MANILA, P. I.

IMPORTERS AND EXPORTERS: COMMISSION AGENTS



WAREHOUSES .- W. H. ANDERSON & CO.

#### AGENTS IN THE PHILIPPINES FOR

GREEN ISLAND CEMENT COMPANY, LIMITED

FARM AND ROAD WAGONS OF EVERY DESCRIPTION

LIBBY, MCNEILL & LIBBY

SWIFT & COMPANY BRUNSWICK-BALKE COLLENDER CO. DIEBOLD SAFES
AERMOTOR COMPANY
LUBRICATING OILS

DEERE IMPLEMENT COMPANY
HILBERT BROS.
ETC., ETC.

## CONTRACTING AND BUILDING

ATTRACTIVE STYLES AT ATTRACTIVE PRICES

257 San Miguel

O. F. GAMPBELL & COMPANY

MANILA, P. I.

## W. F. Stevenson & Co., Ltd.

ILOILO

MANILA MERCHANTS

CEBU

#### STEAMSHIP AGENCIES

#### INSURANCE AGENCIES

LIFE, STANDARD LIFE ASSURANCE CO.—MARINE, MARINE INSURANCE CO., LTD.—STANDARD MARINE INSURANCE CO., LTD.—BRITISH AMERICA ASSURANCE CO.—FIRE, NORWICH UNION FIRE INSURANCE SOCIETY—SCOTTISH UNION AND NATIONAL INSURANCE CO.—NATIONAL ASSURANCE COMPANY OF IRELAND—BRITISH AMERICA ASSURANCE CO.—NEW ZEALAND INSURANCE CO.—.

4 MUELLE DEL REY, MANILA, P. I.

## SAN FRANCISCO TO THE EAST

## The Overland Limited

Electric-lighted parlor sleeping cars, combination buffet-library and drawing-room observation cars. Diner all the way \* \* \* \* \*

The Last Word in Luxurious Travel

Over the scenic route and straight across the Great Salt Lake by way of Lucin-Ogden cut-off, a wonderful triumph of modern engineering

## SOUTHERN PACIFIC

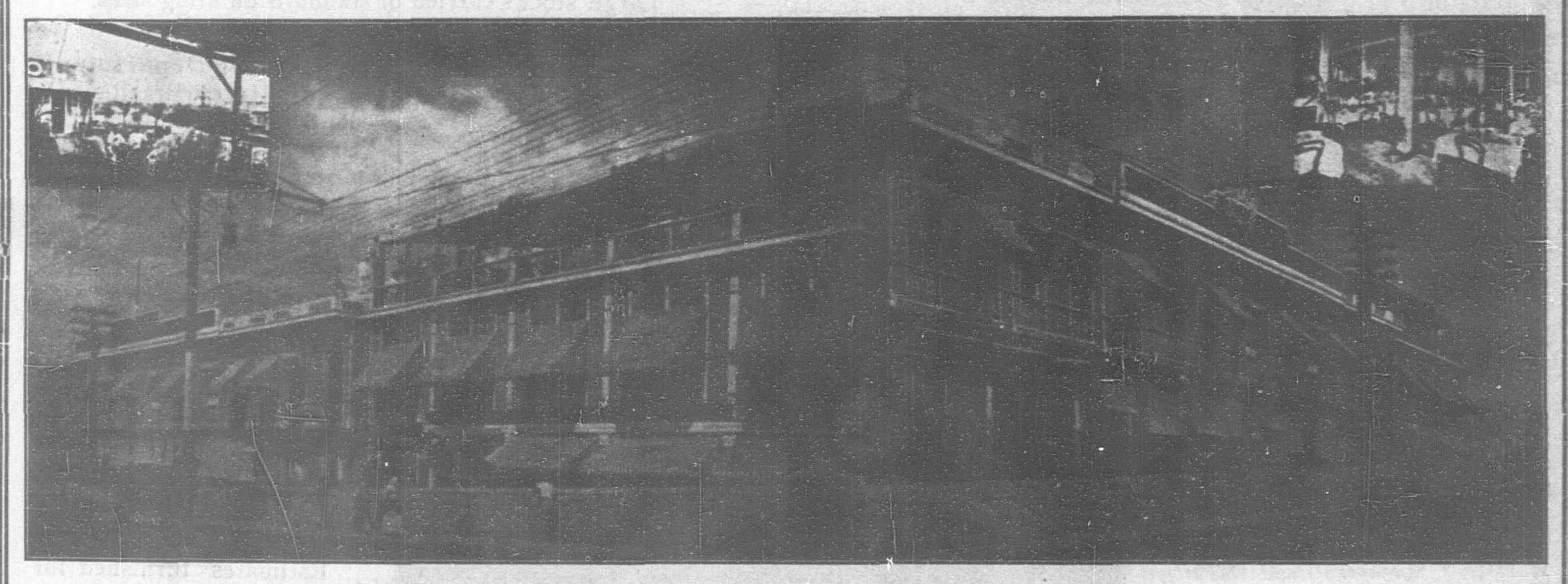
## NEW METROPOLE HOTEL

"METROPOLE" MANILA

MANILA, P. I.

AMERICAN AND EUROPEAN PLAN.

THIS MAGNIFICENT HOTEL HAS JUST BEEN COMPLETED AND IS FURNISHED IN THE MOST UP-TO-DATE MANNER. COMMODIOUS, WELL-AIRED, LIGHTED, AND SPACIOUS BEDROOMS

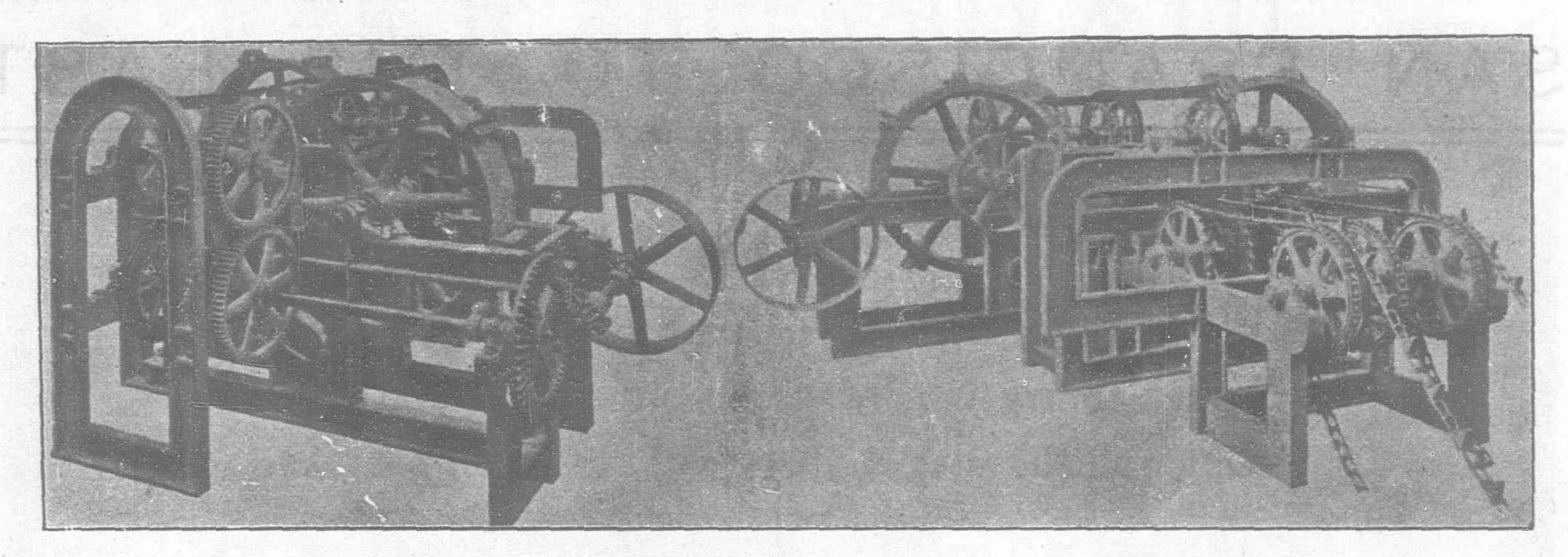


NEW METROPOLE HOTEL SHOWING ROOF GARDEN

Private Dining Rooms for Banquets, Wedding Parties, etc.

Roof Garden from which a Panorama of the Pasig river and Manila may be enjoyed.

Centrally Located. Modern and Up-to-date-Cool and Well Ventilated-Electric Fans in all rooms-Excellent Service.



PIONEER FIBRE MACHINERY

## FIBREMACHINERY

WE MAKE THE MOST PERFECT AND EFFICIENT FIBRE DECORTICATING MACHINERY IN THE WORLD

OUR MACHINES ARE IN USE IN ALL THE LEADING SISAL PLANTATIONS IN MEXICO, CUBA AND THE BAHAMAS

WRITE TO US FOR PARTICULARS AND PRICES

## THE PIONEER IRON WORKS

49-63 Pioneer Street BROOKLYN, N. Y., U. S. A.

## The North Borneo Trading Co., Ltd.

"PLANTABLE" Sandakan
"PLANTABLE" London

SANDAKAN, B. N. BORNEO

CODES:
A1 and A. B. C. 4th and 5th Eds.
and Western Union

Sole Agents in Borneo and the Philippine Islands for

Messrs. McKie & Baxter,

Copland Works, Govan, Glasgow

BOILERMAKERS-ENGINEERS-SHIPBUILDERS. Boilers of all

kinds. Machinery of every description.

#### CORRESPONDENCE INVITED

For samples of Timber and further particulars apply to:

THE GENERAL MANAGER,

Sandakan, British North

Borneo.

THE SECRETARY, THE NORTH BORNEO TRADING CO., LTD., 70-71, Bishopsgate Street, London.

MESSRS.BUTTERFIELD&SWIRE,

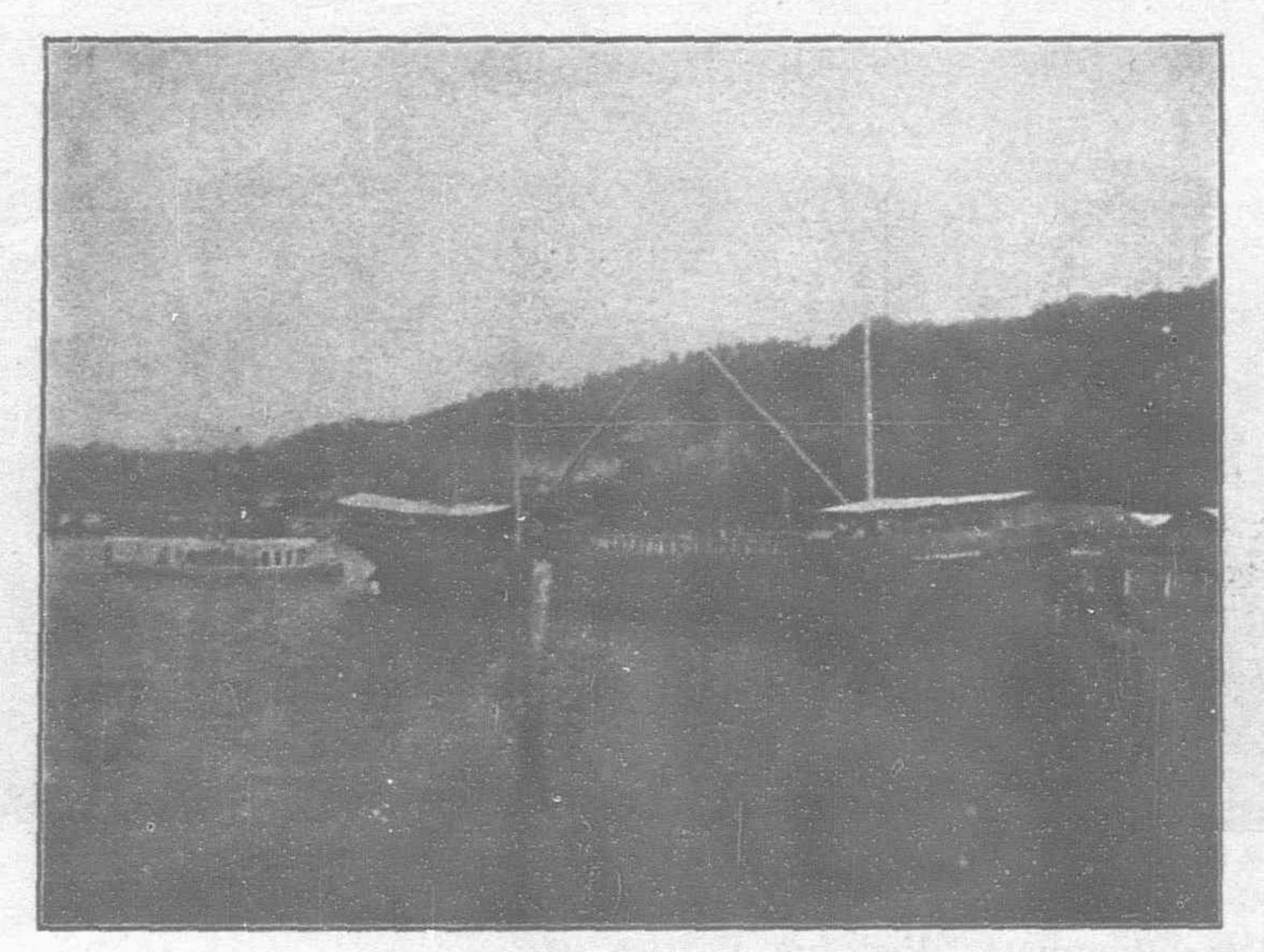
Hongkong and China
Ports.

MESSES, GUTHRIE & CO.,

Singapore and Straits
Settlements.

HENRY M. JONES, ESQ.,

Manila, P. I.



LARGE STEEL SCHOONER BUILT BY THE COMPANY

Timber Department. Timber supplied in Round and Rough-hewn Logs, Beams, Boards, and Scantling sawn to Specification.

Large stocks carried of standard building sizes.

Sleepers of any dimensions cut to order.

Planting Department.
Para (Hevea Braziliensis)
Rubber Seedlings and
Stumps supplied at short
notice from the Co.'s
Estates.

Seeds available during the season.

Shipbuilding and Engineering Department. Fully equipped for the prompt execution of all kinds of Repairs and General Engineering Work. Best results secured by the use of first-class material and excellence in workmanship.

Estimates furnished for the construction of Steam Launches, Lighters and small Steamers. DIRECTORS

A. HEISE, President

G. MORGAN, Vice-Pres. & Sec'y.

GAY W. PARSONS, Treasurer

THOMAS D. AITKEN

WILLIAM J. SHAW

BERNARD H. BERKENKOTTER

Organized 1901
Incorporated 1903
CAPITAL - \$3,000,000.00

Cable: "GUINOBATAN," Manila
Code: Western Union

## Eastern Mining Co.

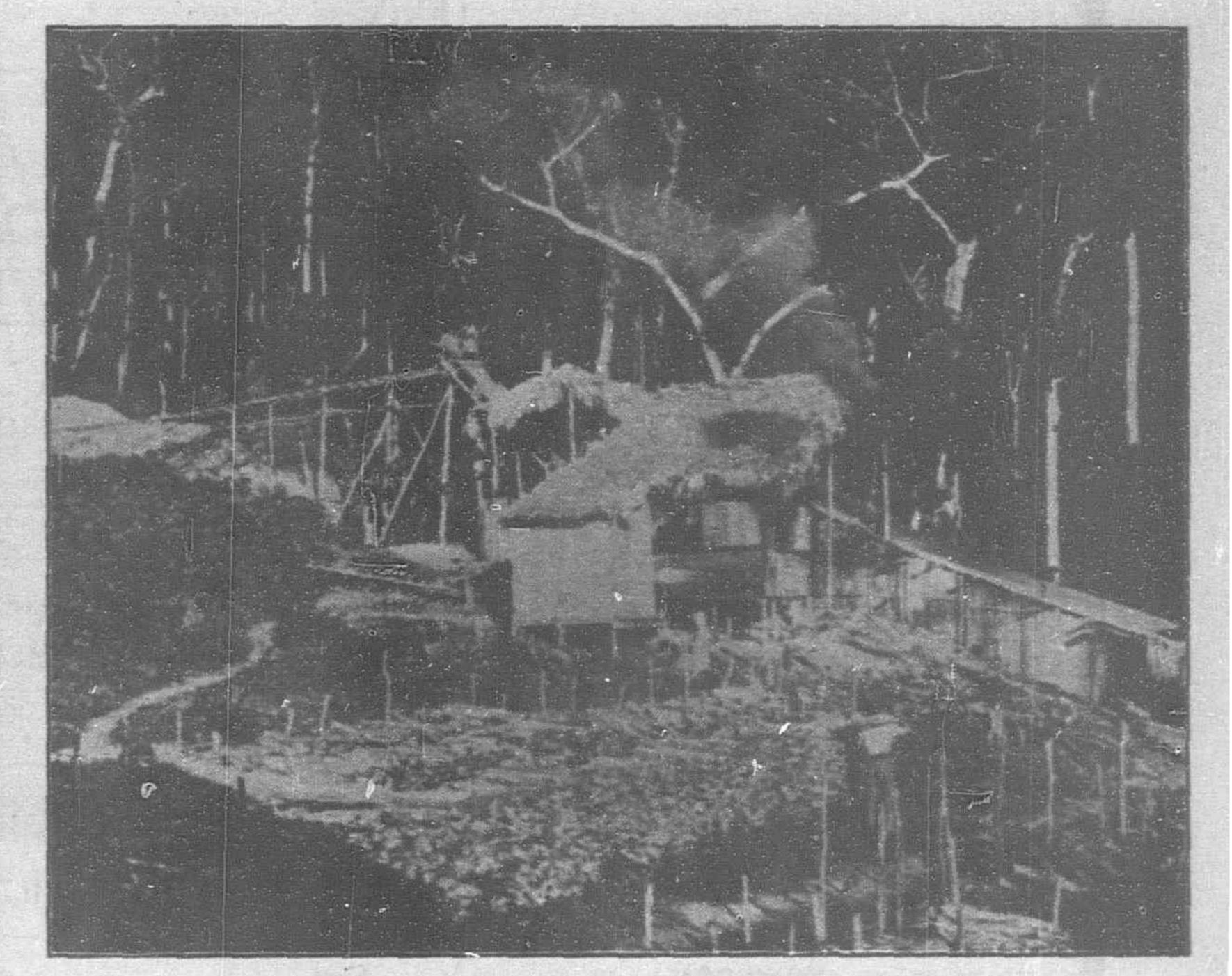
INCORPORATED

Intern. Banking Corporation Building
PLAZA MORAGA
MANILA
P. I.

NEW YORK OFFICE
SUITE 514
49 & 51 WALL STREET
Tel., 6842 & 6843 Broad







VIEW OF MILL FROM VERANDA OF OFFICE BUILDING

The property of the Eastern Mining Company is the best developed of those in the Aroroy District on the Island of Masbate, P. I.

From inspection trips of government officials, from preliminary investigations of the Mining Bureau of the Philippines, and from reports of Mining Engineers, it is conceded that the property is one that will, to the fullest degree, justify further development of the mine, and the installation of a suitable plant to treat the ore. There is ore enough "blocked out," in the full engineering significance of the term, to warrant the installation of a plant. From ore tests made by responsible engineers, it is found that there are no undue difficulties in the way of rapid and cheap treatment.

Conditions of mining on the property are excellent. The mines are opened by tunnels and are self-draining. There is ample height above the mine levels for the working of the ore bodies economically and by best methods.

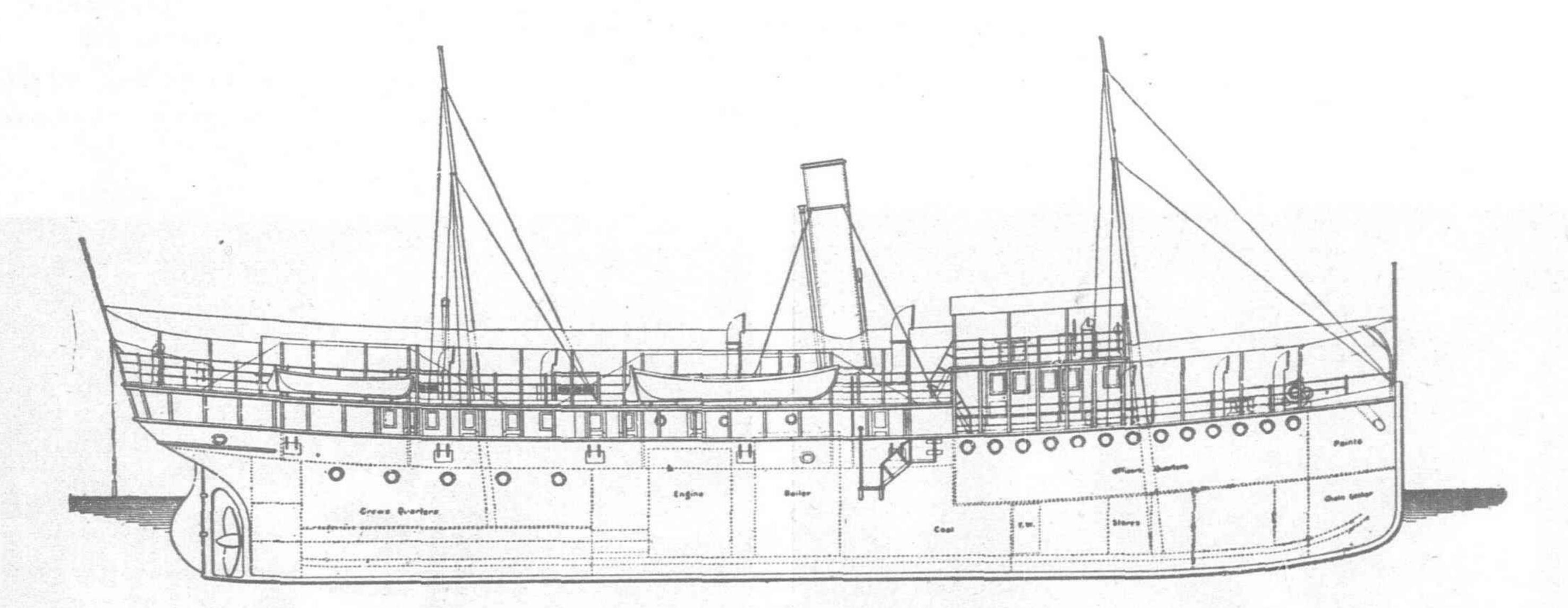
By careful and extensive sampling the values of the ore bodies are assured, and the mine shows ore that can be handled at a handsome profit. The results of the experimental plant show conclusively that estimates and figures are correct and that now the Company is assured of success, by the proper exploitation of the property.

What is needed now is a large milling plant with its increased mine development and for this purpose—for the expansion of the present well proven concern into a large producer,—a limited amount of treasury stock is offered investors at a low figure, for providing the necessary capital to purchase and install a new 40-stamp mill. For particulars and information apply to either Manila or New York Office.

# Hongkong & Whampoa Dock Co., Ltd.

ENGINEERS, BOILERMAKERS, FOUNDERS, SHIP BUILDERS AND DOCK OWNERS

... IHONGKONG...



## U. S. COAST & GEODETIC SURVEY STEAMER "FATHOMER" BUILT BY THE HONGKONG AND WHAMPOA DOCK CO., LTD., FOR THE UNITED STATES GOVERNMENT, FOR SERVICE IN THE PHILIPPINES

THE COMPANY'S DOCKS at KOWLOON, TAI-KOK-TSUI and ABERDEEN are in efficient working order, and the attention of Captains and Shipowners is respectfully solicited to the advantages which these Establishments offer for Docking and Repairing Vessels.

The Company has SIX GRANITE DOCKS and TWO PATENT SLIPS of the following dimensions:-

NAME OF DOOR OF STAD	LENGTHON	DDDADWII AT ENTDANCE	DEPTH OVER SILL	RISE OF TIDE		
NAME OF DOCK OR SLIP	KEEL BLOCKS	BREADTH AT ENTRANCE	AT ORDINARY SPRING TIDES	SPRINGS	NEAPS Feet.	
KOWLOON	Feet.	Feet.	Feet.	Feet.		
No. I Dock, Kowloon	576	§ 86 feet top }	30'	7' 6"	3	
No. 2 Dock, Kowloon  No. 3 Dock, Kowloon  Patent Slip, No. 1, Kowloon  Patent Slip, No. 2, Kowloon	37I 264 240 220	74' 49' 3" 60'	18' 6" 14' 14'	7' 6" 7' 6" 7' 6"		
TAI-KOK-TSUI Cosmopolitan Dock	466	85' 6"	20'	7' 6"	-	
ABERDEEN Hope Dock	430 333	84' 64'	23' 16'	7' 6" 7' 6"		

The DOCKS are fitted with every appliance in the way of Caissons, powerful Centrifugal Steam Pumps, etc., which enable them to be pumped out in three hours.

WORKSHOPS.—The extensive workshops on the premises at Kowloon, Cosmopolitan, and Aberdeen Docks possess every facility and appliance necessary for the repairs of ships and steam machinery. The Engineers' Shops are supplied with a large plant of the latest types of tools in the way of Lathes, Planing, Milling and Screwing Machines, Electric Cranes, etc., etc., and capable of executing the largest class of work with despatch. The Shipwrights' Department has attached to it a Steam-Sawmill with Circular, Vertical and Band Saws, and also a complete plant of Wood-working Machinery of the most modern and improved type. The Blacksmiths' Shops are equally well furnished with a complete supply of powerful Steam Hammers, Cranes, etc., capable of forging stern posts and crank and straight shafting of the largest size.

Powerful Lifting Shears with steam purchase at two of their Establishments stand on a solid granite seawall, alongside which vessels can

The Company is prepared to tender for the construction of new vessels in either steel, iron or wood, having already built about 400 of varying sizes up to 3,000 tons; also to execute all kinds of ship work at lower rates and with greater despatch than any establishment in the East. Every department is under the close supervision of experienced European foremen.

SHIP-YARD is fully equipped with modern plant, including hydraulic flanging and bending machines, electrically driven rolls, punching, shearing, angle bevelling, joggling and planing machines, capable of dealing with the heaviest class of work.

BOILER-MAKERS' DEPARTMENT.—The Company, in addition to executing repairs, is prepared to tender for new boilers to steamships for the construction of which it possesses special facilities, including powerful punching and shearing machines, hydraulic rivetters, etc.

FOUNDRY.—The Foundry is fitted with a large powerful Steam Crane and the Cupolas are capable of casting up to 100 tons. The Company is prepared to supply the very best iron and Brass Castings of all descriptions upon the shortest notice.

GALVANIZING PLANT of the most modern type by electrical deposit has been put up at the Kowloon Establishment, which is capable of doing the largest class of work.

STORES.—The Company's Godowns contain large and well-selected stocks of all material and fittings requisite in shipbuilding, engine-room outfits, furnishings, and ships' stores of all descriptions supplied at tariff rates.

For Further Particulars apply at the Offices of the Company, Queen's Buildings, No. 1, New Praya, Hongkong, or to

FINDLAY & CO., Agents, Manila, P. I.

Cable Address:
"FARNHAM," SHANGKAI

Codes Used:

A I., A B C (4th & 5th Editions)

Watkin's, Scott's, Western Union, and Engineering

## THE SHANGHAI DOCK AND ENGINEERING CO., LTD.

(Late S. C. Farnham, Boyd & Co., Ltd.)

SHANGHAI, CHINA

Dock Owners, Engineers, Founders, Boiler-makers, Shipbuilders, and Electricians



CHINA MERCHANTS' S. N. CO.'S SCREW STRAMER "HSINKONG."

#### THEDOCKS

2

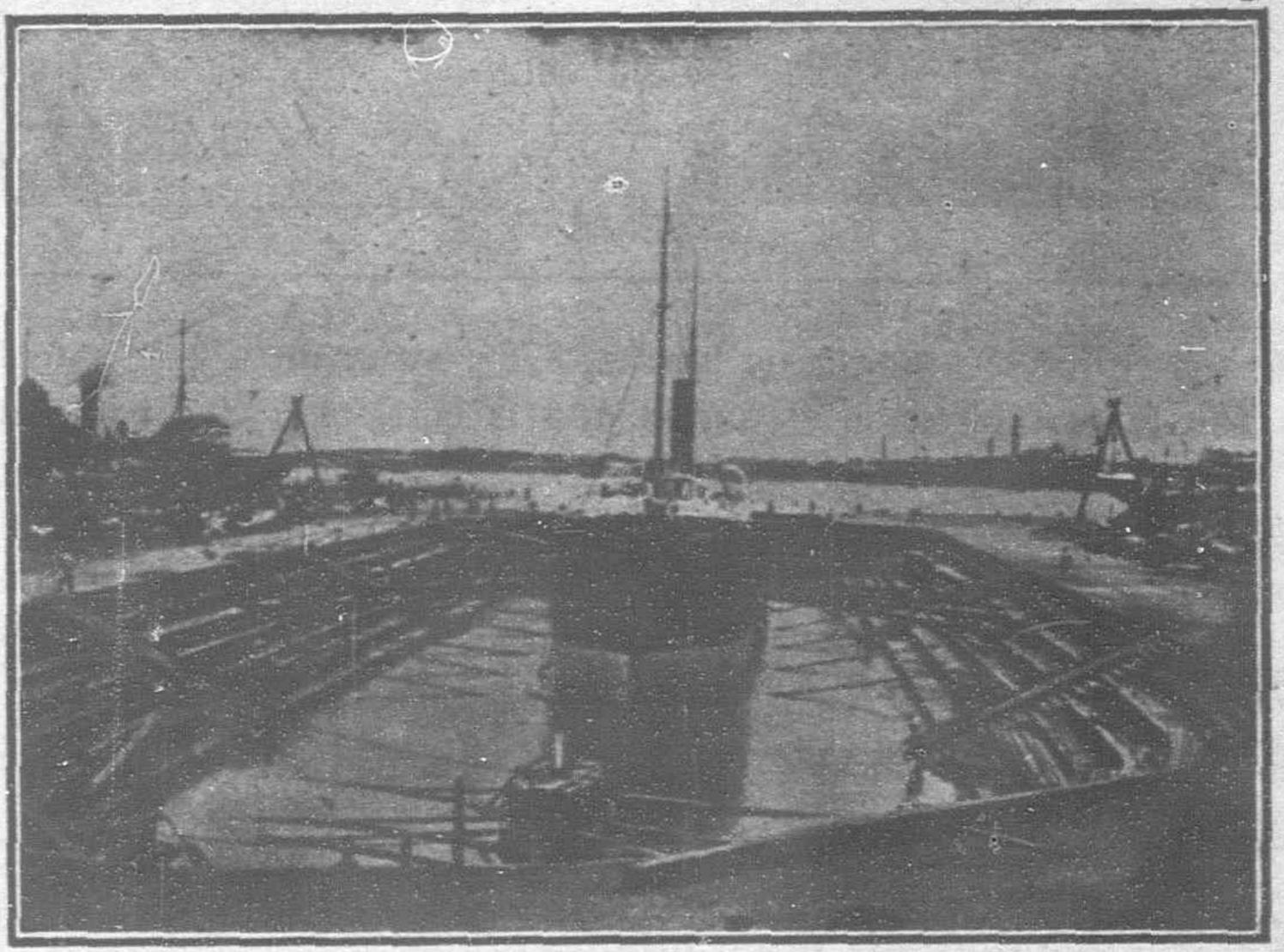
The Docks are five in number ranging in length from 360 feet to 560 feet, and breadth of entrance from 57 feet to 83 feet, with the depth of water on the sill from 16 feet to 24 feet.

The Dock charges are very moderate.

The Water Frontage is about 1½ miles in length. Wharves and Pontoons are arranged where steamers can moor during repairs; and slips for hauling up small vessels are provided. Sheer legs capable of lifting 65 tons are placed at the various Docks.

The extensive shipbuilding yards and workshops are provided with the latest improvements in tools, traveling cranes of 70 tons' capacity, hydraulic and pneumatic machinery.

Lit up by electric light with railway lines through workshops and yards.



NEW DOCK AT POOTUNG

#### OTHER WORKS

Powerful salvage appliances can be supplied at short notice. Enquiries immediately attended to.

Estimates given for all classes of work; Coast Steamers, Side and Stern-Wheelers, Tugboats, Launches, Steam Barges, Dredgers, Floating Cranes, and Lighters a speciality.

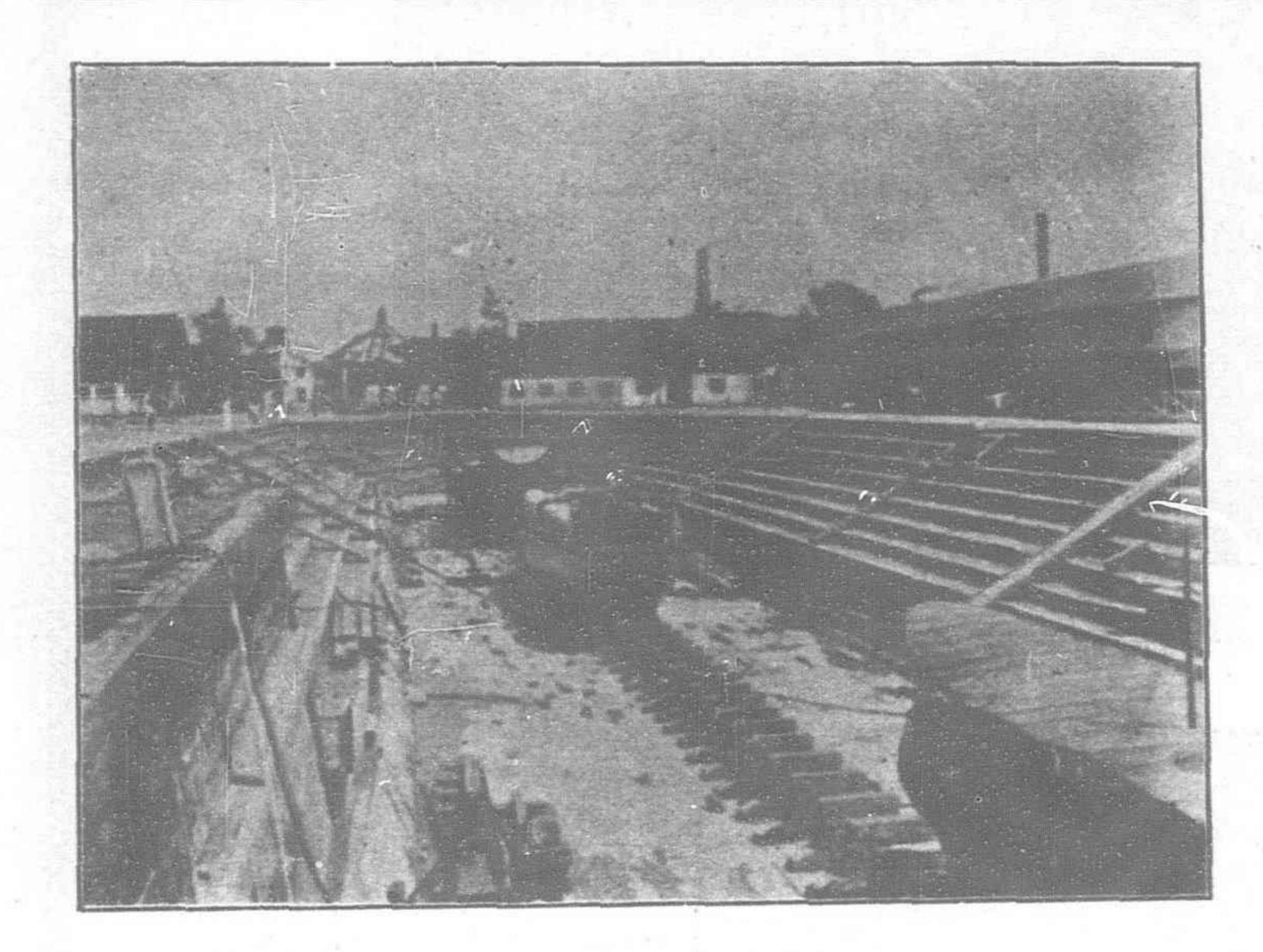
Every description of repairs and renewal work undertaken and expeditiously executed.

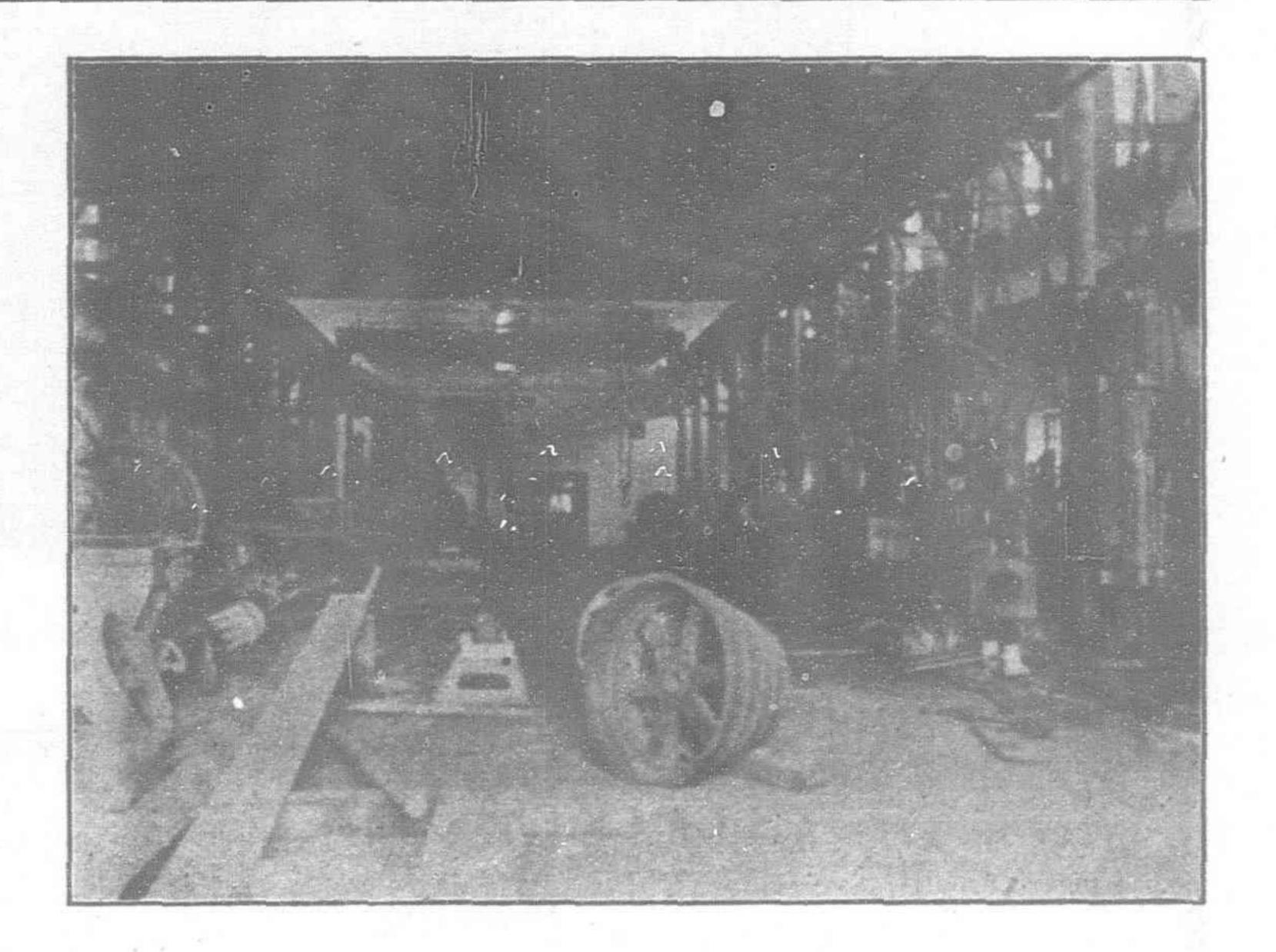
Land and Marine Engines and Boilers, Centrifugal, Mining, and other pumping machinery always in stock or in progress, also power-driven Machine Tools, Engineer's Hand Tools, Steam, Gas, Oil, and Electric machinery and engineering accessories generally.

CORRESPONDENCE INVITED

=鴻

# DOCK AND ENGINEERING WORKS





KIANGNAN DOCK—Length over all, 385'; length on blocks, 375'; water on sill, 19'; dock entrance, top, 70', bottom, 60'. The dock accommodates the largest coasting steamers and is equipped with complete modern facilities for handling work thoroughly and promptly.

The new machine and boiler shops, and the foundry and shipbuilding plant are equal to any this side of Suez. Patent slipway for small steamers and launches. Complete boat and launch building shops.

CONTRACTORS FOR REPAIRING, DOCKING AND REFITTING THE VESSELS OF THE IMPERIAL CHINESE NAVY AND THE IMPERIAL MARITIME CUSTOMS

DIRECTORS:
ADMIRAL SHA,
CAPTAIN WOO,

Imperial Chinese Navy

MANAGERS:

R. B. MAUCHAN

SHIPBUILDERS, ENGINEERS, BOILERMAKERS & DOCK OWNERS

SHANGHAI

CABLE ADDRESS:

CODES:

A. B. C. 5th Edition,
ENGINEERING,
LIEBER'S,
STANDARD

HEAD OFFICE:
BRUSSELS,
BELGIUM

## BANQUE SINO-BELGE

BRANCHES: SHANGHAI, TIENTSIN

(SINO-BELGIAN BANK)

Capital Fully Paid Up: Frs. 15,000,000 (£600,000)

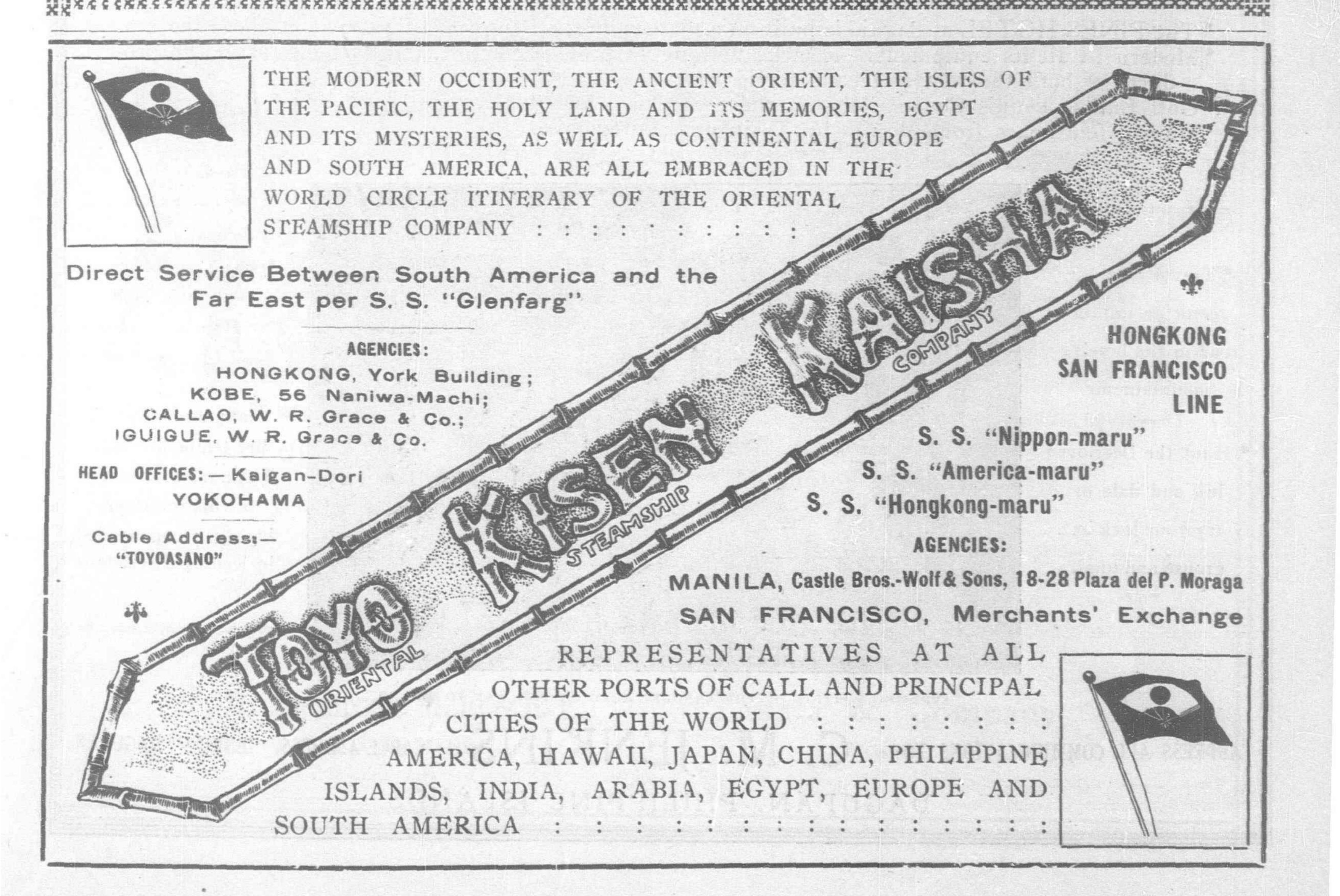
Chairman: BARON F. BAEYENS, Governor of the Societe Générale de Belgique

AGENTS AND CORRESPONDENTS IN ALL PRINCIPAL CITIES

Every Description of Banking and Exchange Business Transacted

#### DEPOSITS RECEIVED AT SPECIAL RATES

Special Exchange Facilities with Belgium and France

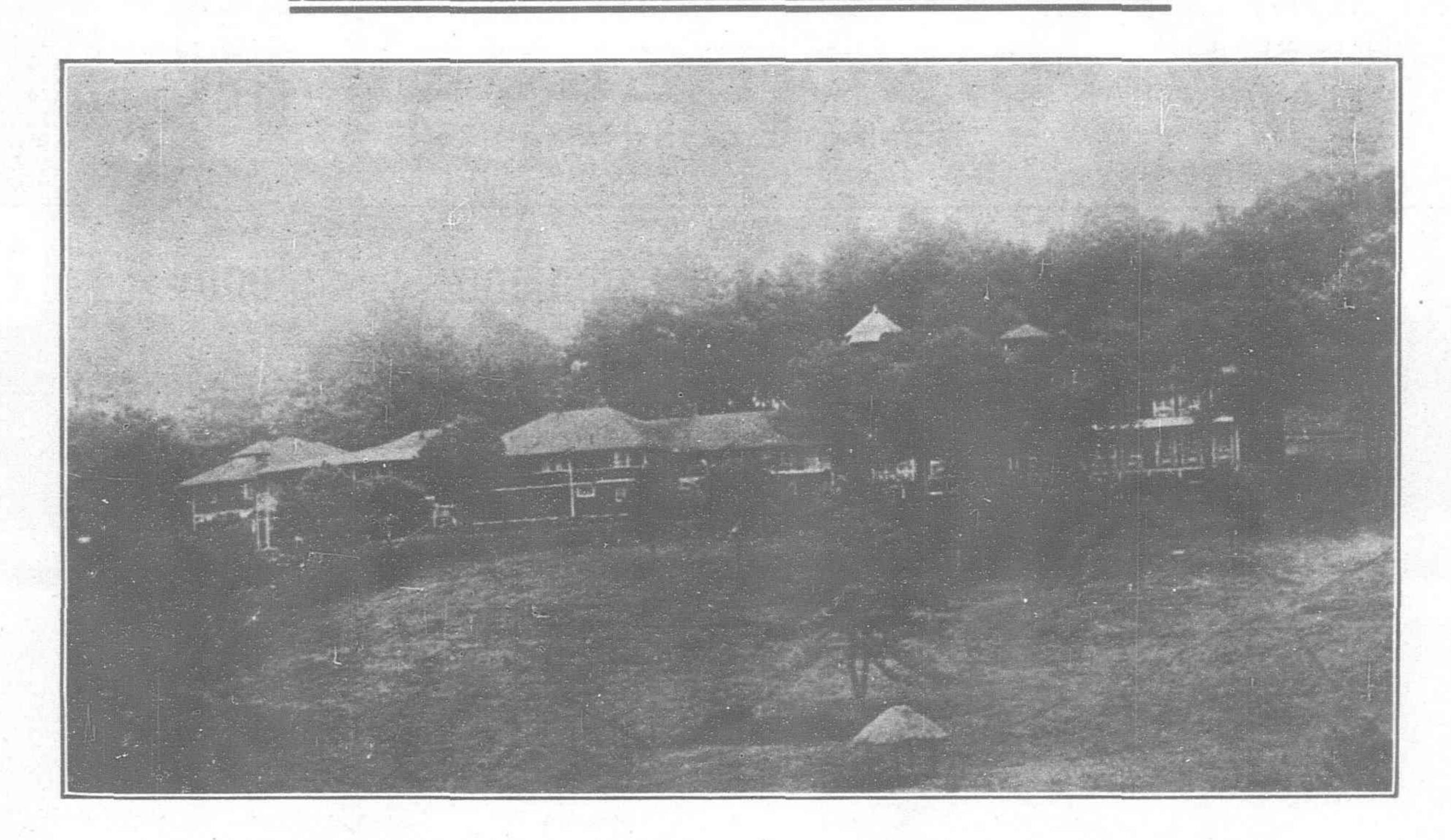


C. M. Jenkins, Proprietor

## HOTEL PINES

THE FAR EASTERN REVIEW

Baguio, Philippine Islands



## THE SIMLA OF THE PHILIPPINES

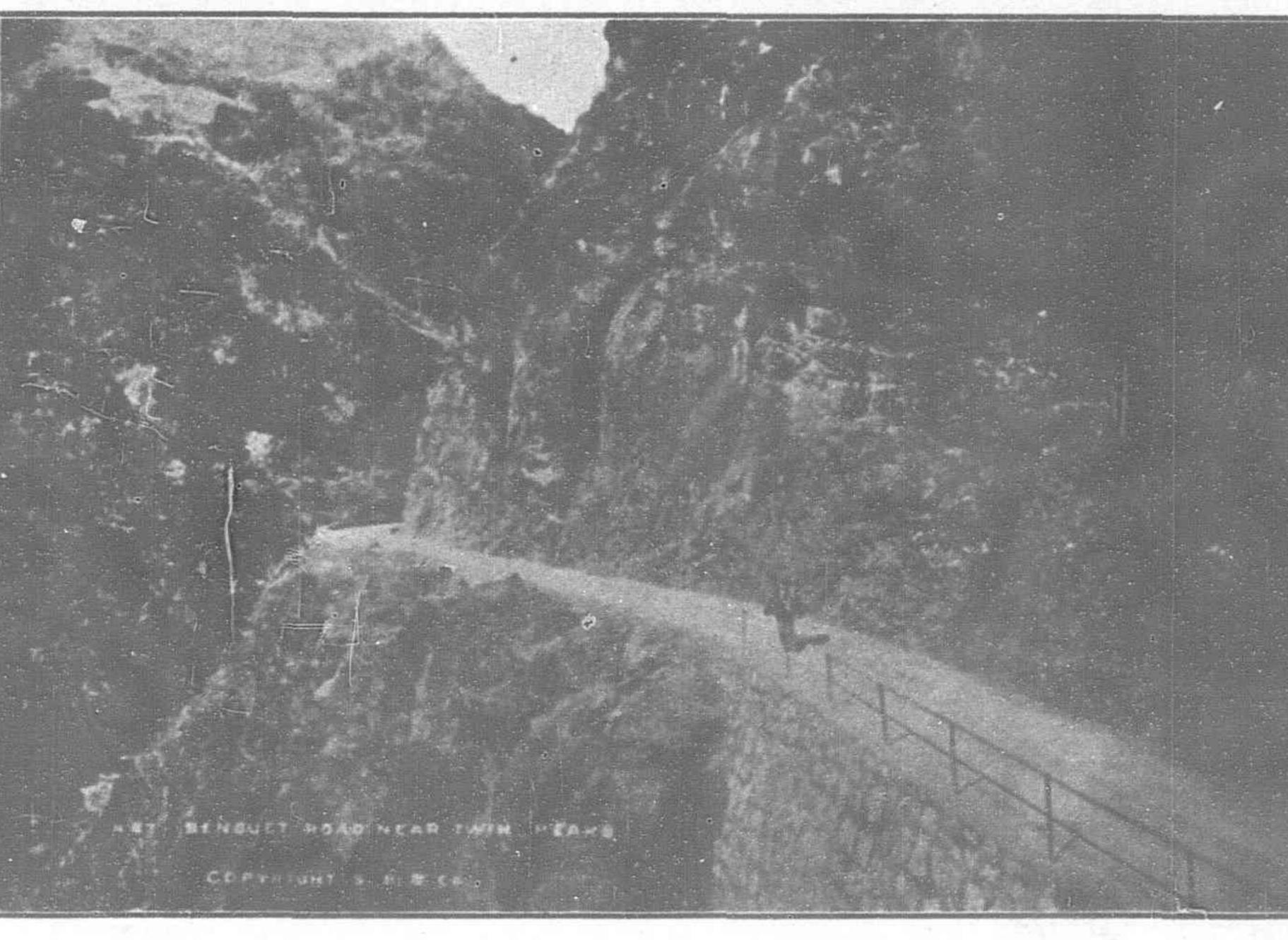
The PINES HOTEL at Baguio is built on a plateau in the Benguet Hills 5000 feet above the sea.

Modern in all its equipments—it lacks nothing to provide comfort, and its tables serve the products of both the temperate and torrid zones.

¶Golf Links, Tennis Courts, Polo Grounds, etc., in connection. ¶Only a few hours from Manila by Train and Automobile.

Travel over the scenic mountain road in the bracing mountain air

Hunt the Deer over
hill and dale or
try your luck at
grouse and quail



delightful and invigorating and has all the restoring powers of a mountain resort in the temperate zone.

The mineral waters of this resort are highly recommended by leading Physicians

STRIKING PORTION OF THE BENGUET ROAD ON THE WAY TO BAGUIO

ADDRESS ALL COMMUNICATIONS TO

C. M. JENKINS

CABLE ADDRESS, "JENKINS" DAGUPAN

DAGUPAN, PHILIPPINE ISLANDS -

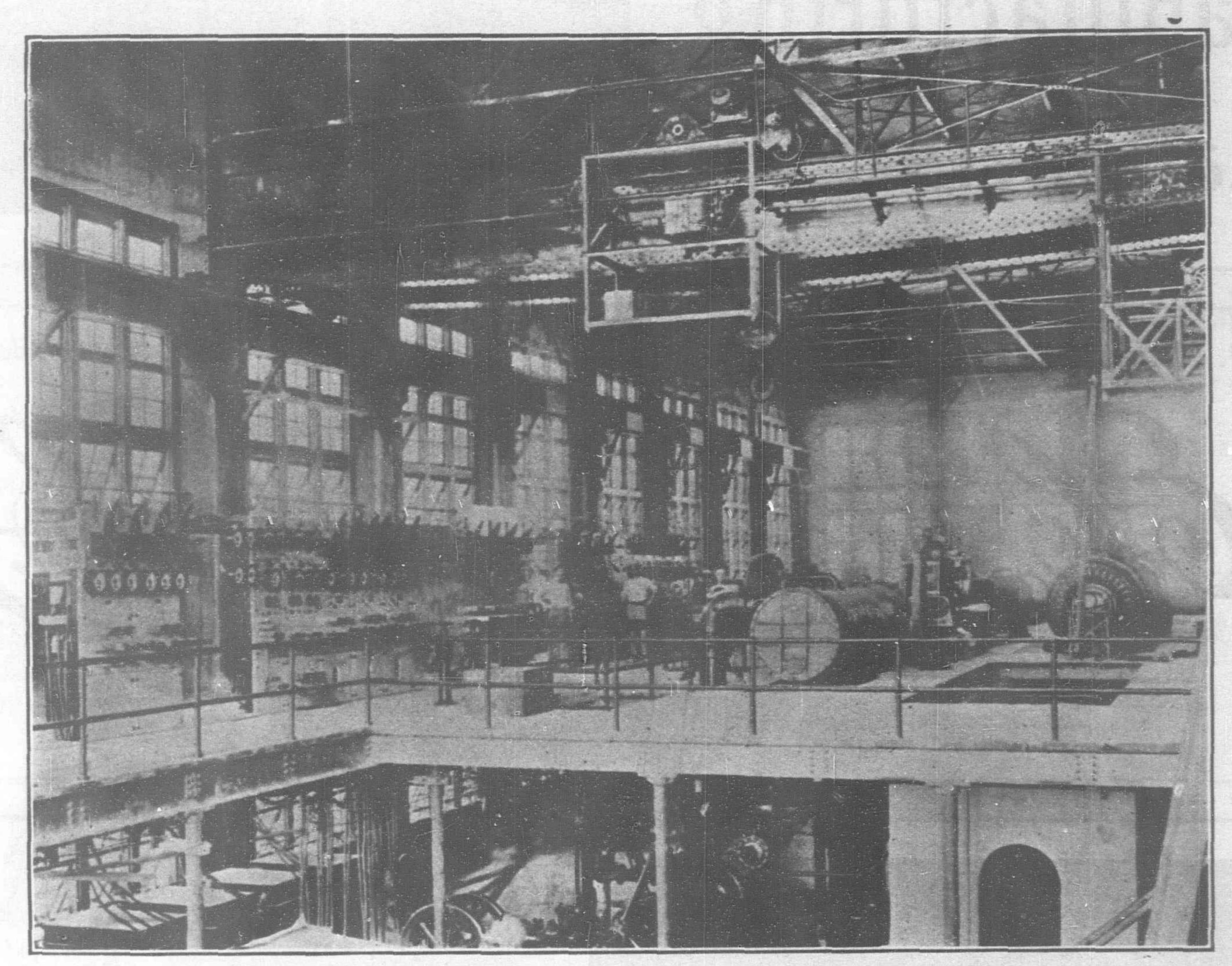


# WESTINGHOUSE,

## ELECTRIC & MANUFACTURING CO



Designers and Builders of Modern Electrical Machinery



ENGINE ROOM OF MANILA ELECTRIC RAILWAY AND LIGHT COMPANY'S PLANT, INSTALLED WITH WESTINGHOUSE EQUIPMENT

GENERATORS, MOTORS, ELECTRIC LOCOMOTIVES, LAMPS, METERS AND HIGH GRADE SUPPLIES OF ALL KINDS

COMPLETE CENTRAL AND ISOLATED PLANTS AND POWER TRANSMISSION SCHEMES A SPECIALTY

FAR EASTERN AGENTS

PHILIPPINES

JAPAN

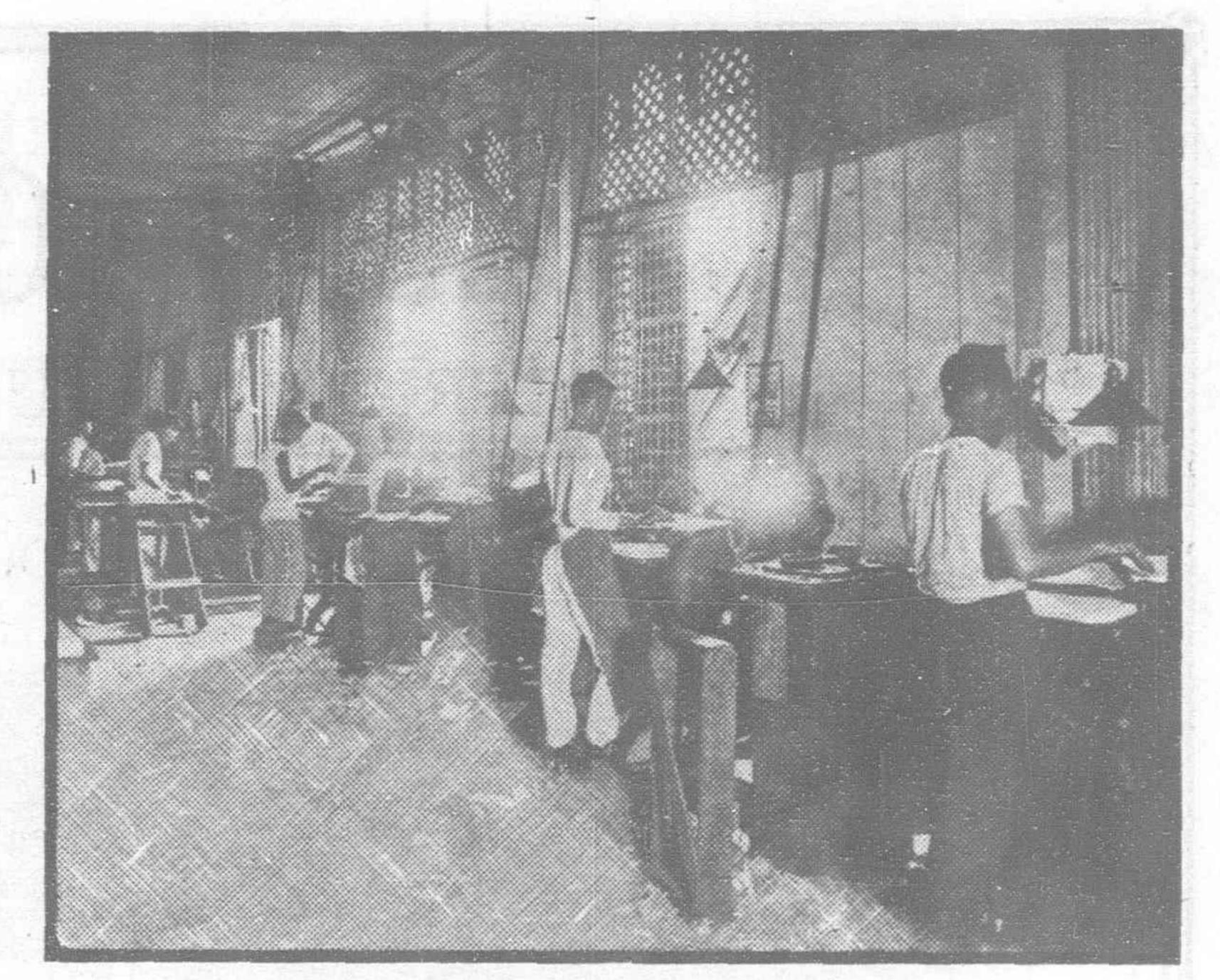
F. H. Thompson, M. E. & E. E.

Takata & Company

P. O. BOX 593, MANILA

TOKIO

# Printers Publishers and Manufacturing Stationers

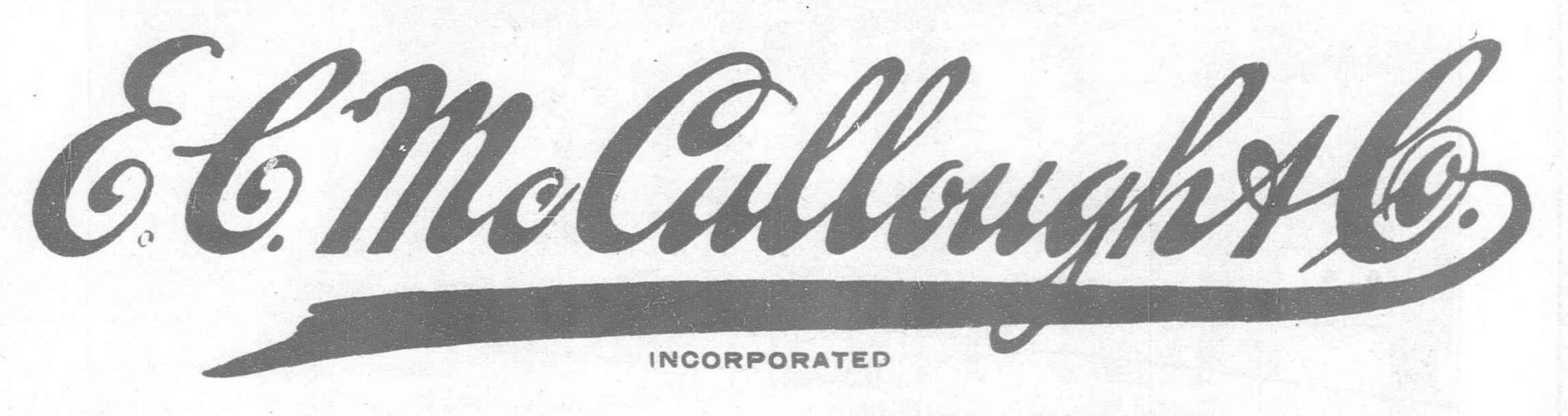


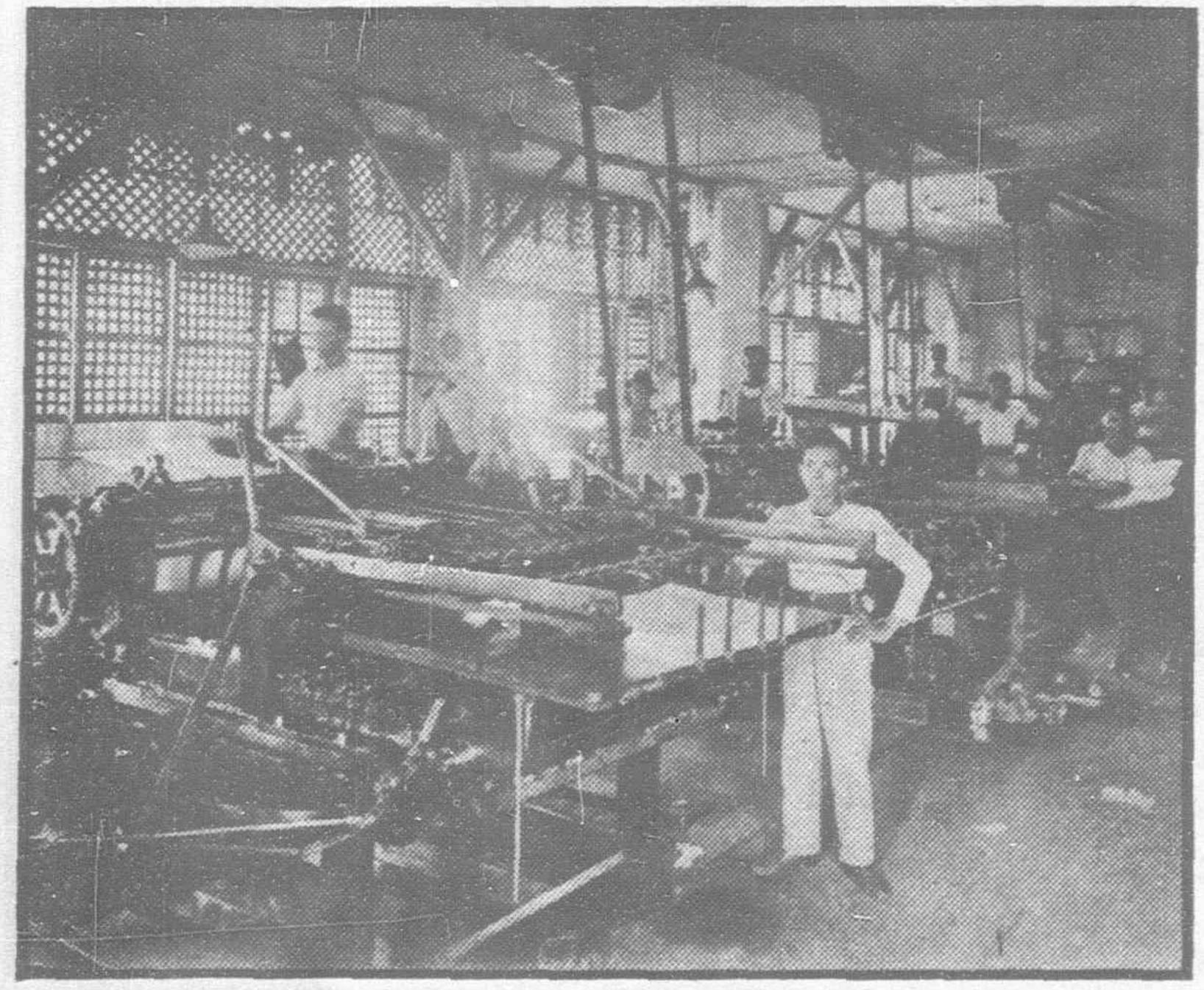
PLATEN PRESS SECTION

P. O. BOX 610

MANILA, P. I.

Prompt attention given to mail orders.





CYLINDER PRESS SECTION

# Copperplate and Steel Die Engravers

We Make a Specialty of Engraving and Stamping Heraldic Devices for Personal Correspondence Paper Wedding Invitations and Announcements, At Home and Reception Cards, Visiting and Dinner Cards, etc., done in the Latest Styles

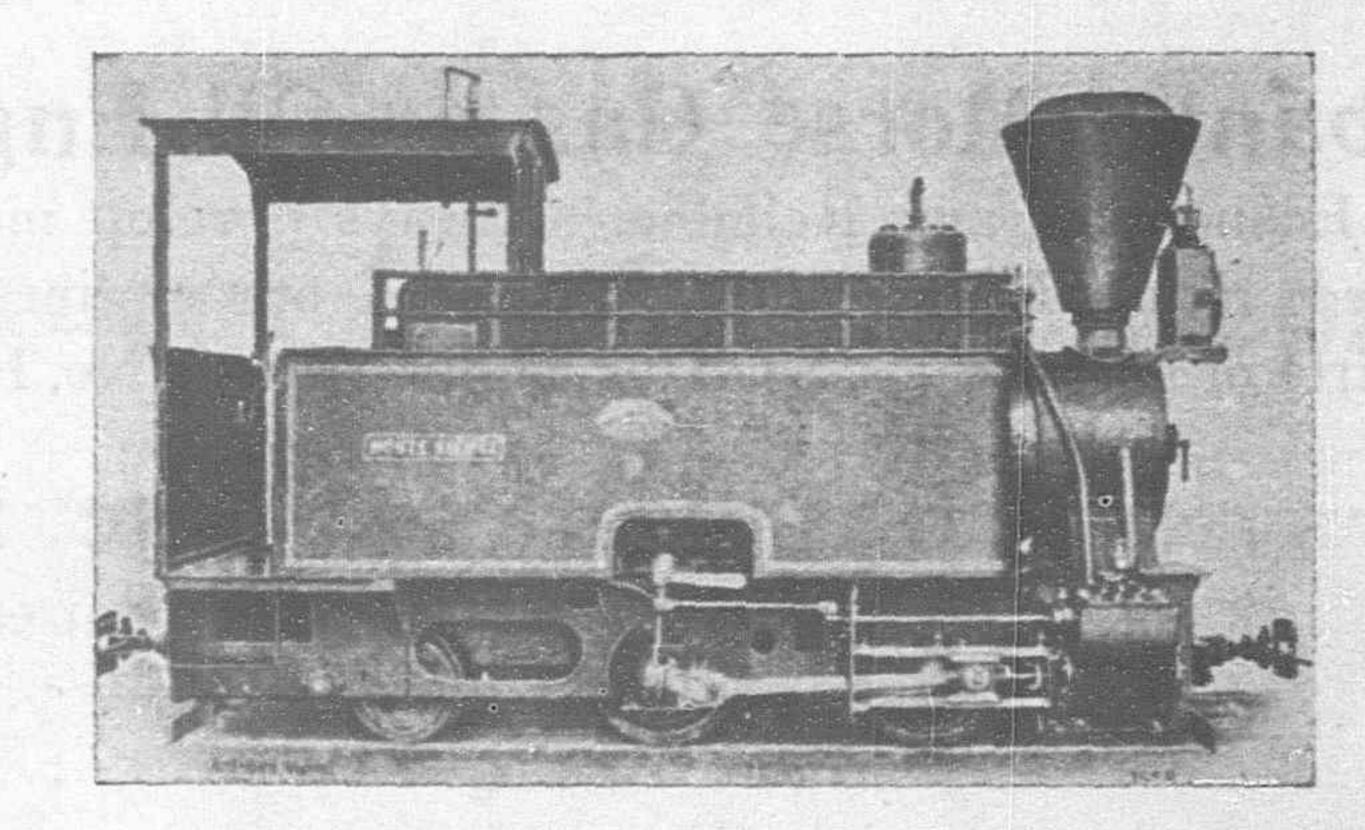
## ORENSTEIN & KOPPEL, Ltd., Berlin

RAILWAY MANUFACTURERS

General Agents for MOLL KUNZLI, & CO., Manila, P. I. the Philippines MOLL KUNZLI, & CO., Manila, P. I.

## Special Locomotive Works

Yearly Output 400 Engines up to 60 tons Weight.



Industrial, Contractor's and Plantation Railroads.

Portable Track with Accessories a Specialty.

Dump Wagons, etc.

Fireless Locomotives

Industrial

Contractor's

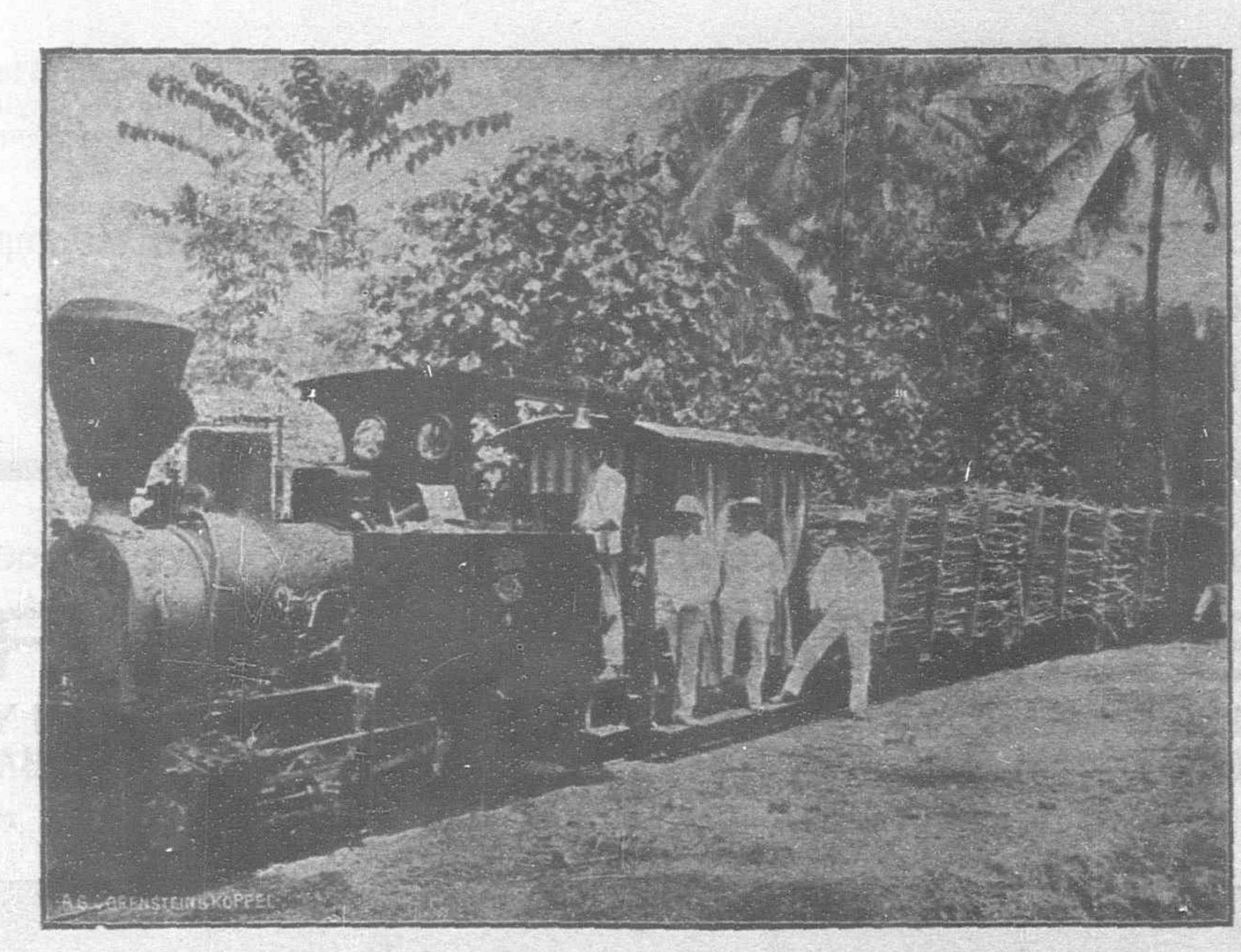
and Plantation

Railroads

Portable Track

with Accessories

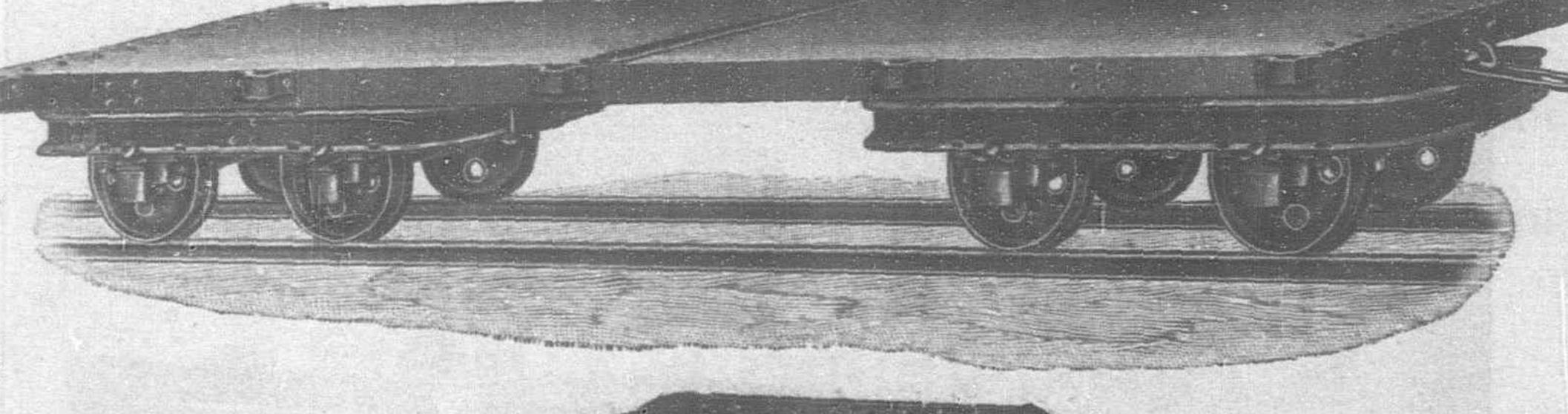
a Specialty



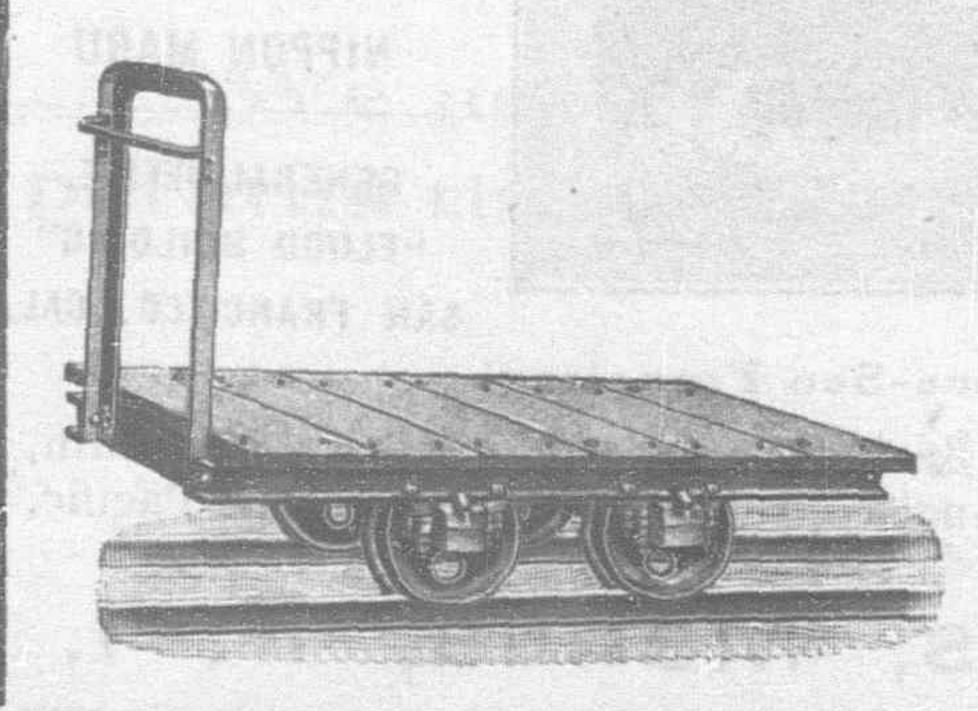
Steel rails,
Sleepers,
Switches,
Turntables,
Wheels,

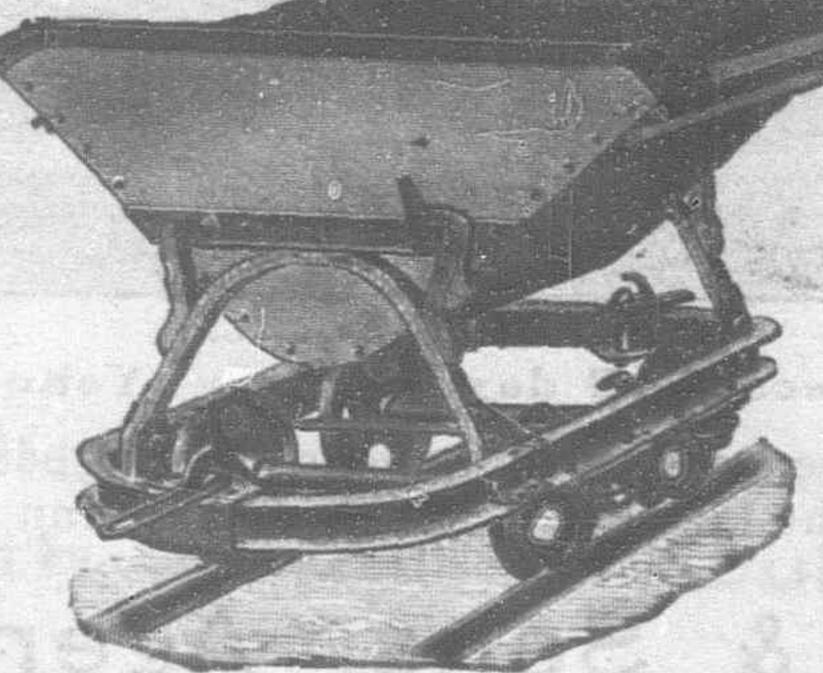
"Sugar Cane
Wagons," etc.

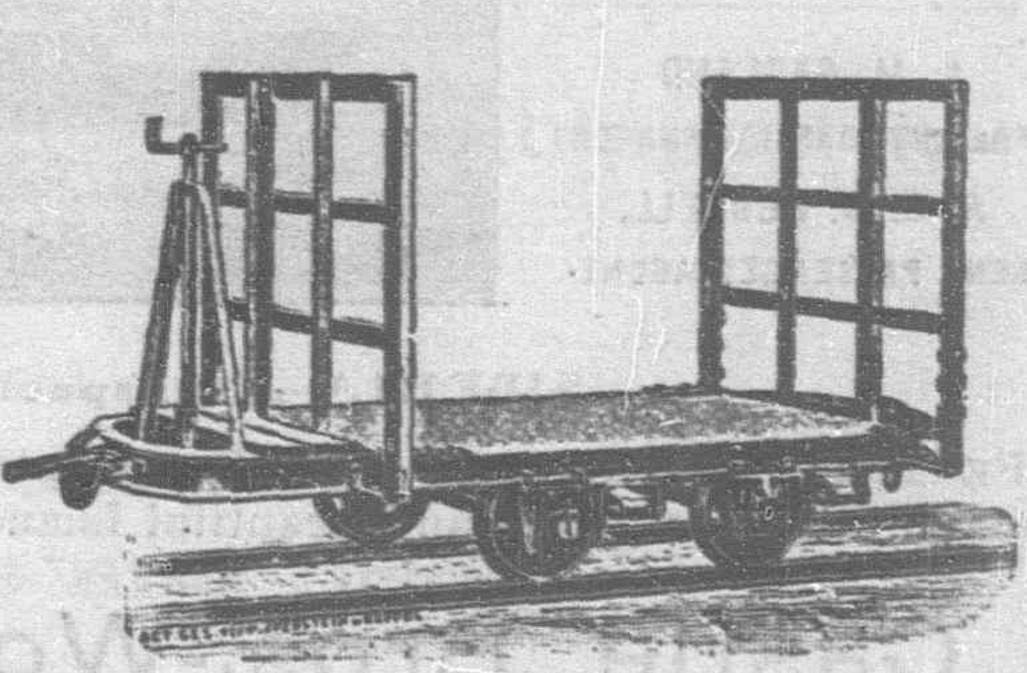
Railroad
Cars and
Trucks

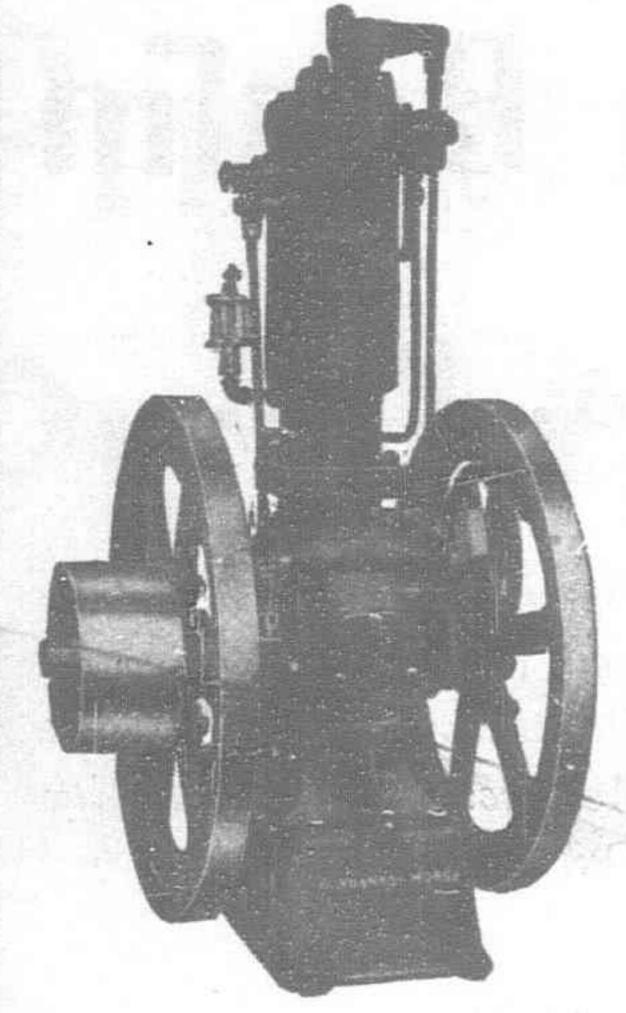


For All
Purposes



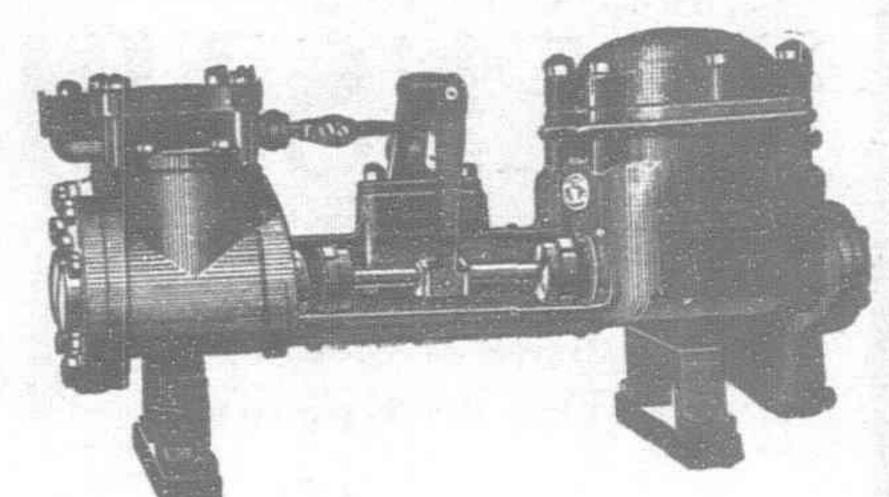






## FAIRBANKS, MORSE & CO.

CHICAGO, III., U.S.A.



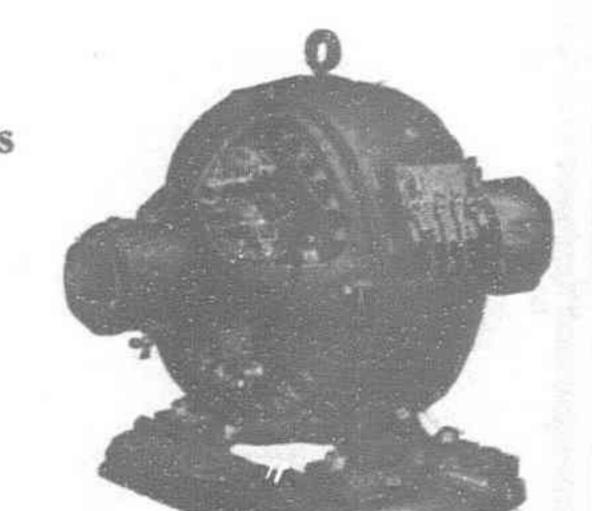
## Fairbanks-Morse Gas or Oil Engines

Simple, Economical and Reliable. Always develop more than full rated Horse Power. Over 50,000 of our engines in use in all parts of the world. Send for Engine catalog No. E. V. 956

## Fairbanks-Morse Steel Windmills

Strongly braced wheel galvanized after completion. Positive brake, self regulating. Will pump in any wind. Send for wind-mill catalog No. 956D::::::::::::

Railroad supplies, Track Tools Hand and Push cars, Motorcars Velocipedes, Turntable Machinery Tanks and Towers, Pumping Machinery Steam and Power Pumps, Irrigating Machinery Mining Machinery, Hoisting Apparatus Air compressors, Producer Gas Plants Engines and Boilers, Marine Engines Dynamos and Motors, General Supplies



#### AGENTS

Manila—CASTLE BROS=WOLF & SONS Yokohama—F. W. HORNE (Engines)

Yokohama—ANDREWS & GEORGE (Pumps and Elec. Goods)
Shanghai—CHINA GENERAL ENG. CO.
Singapore—H. J. M. ELLIS & CO.

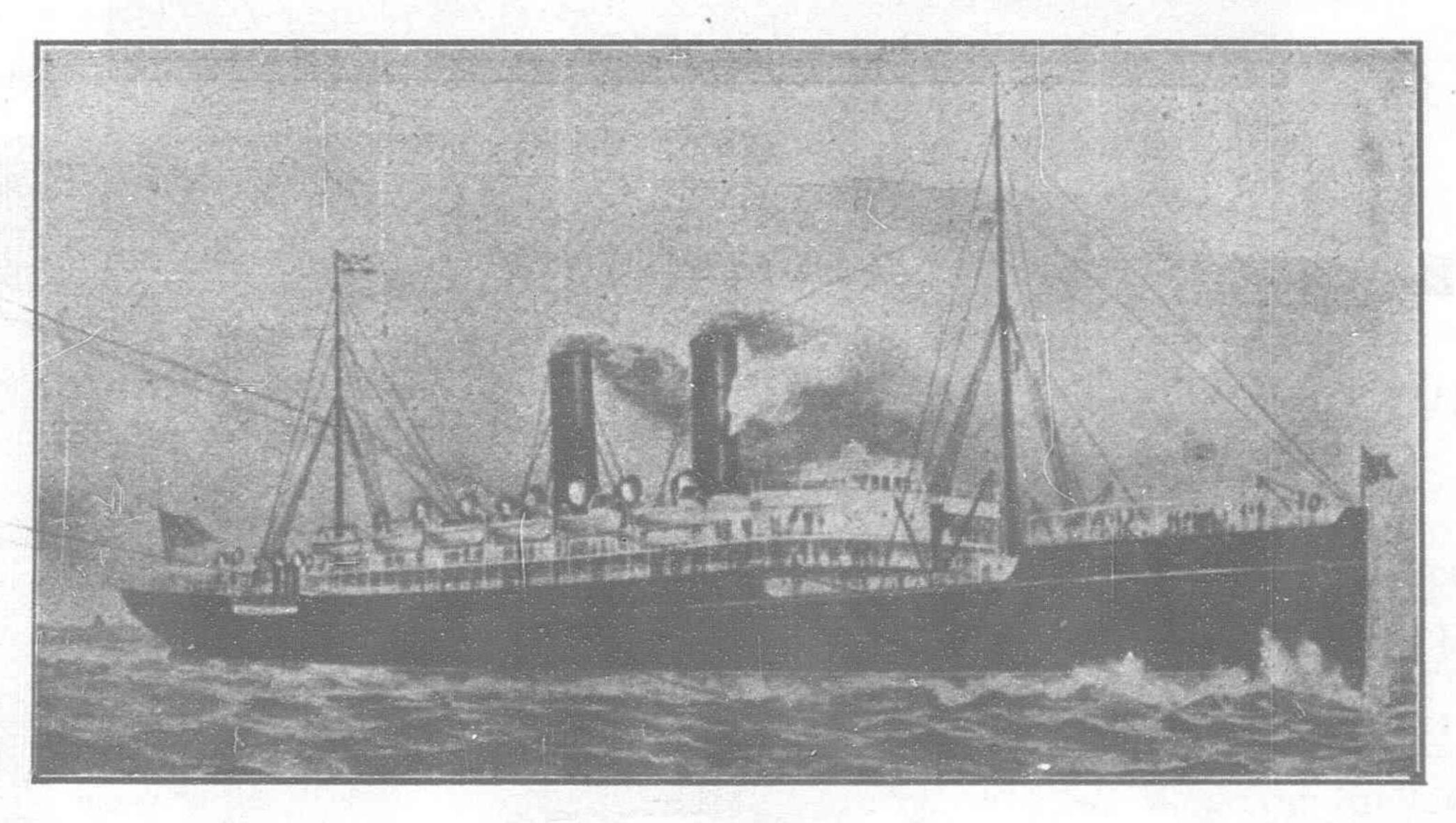
## THE SEMI-TROPICAL ROUTE

PACIFIC MAIL STEAMSHIP COMPANY OCCIDENTAL AND ORIENTAL S. S. CO., TOYO KISEN KAISHA

DIRECT SERVICE BETWEEN SAN FRANCISCO AND THE FAR EAST

SAN FRANCISCO
HONOLULU
YOKOHAMA
KOBE
NAGASAKI
SHANGHAI
HONGKONG
MANILA

A. M. GARLAND
FREIGHT TRAFFIC MANAGER
A. G. D. KERRELL,
GEN. PASSENGER AGENT.



MANCHURIA

MONGOLIA

KOREA

SIBERIA

CHINA

DORIC

AMERICA MARU

HONGKONG MARU

NIPPON MARU

GENERAL OFFICE,
"FLOOD BUILDING"
SAN FRANCISCO, CAL.

SIBERIA-Transpacific Record 10 days 10 hrs. (Yokohama-San Francisco)

FEATURES OF THE LINE:—Southern route; passengers enjoy outdoors throughout; deck bathing. The call at Honolulu, Oahu, the most fertile and beautiful Island of the Pacific. The only line to San Francisco, the greatest port of the Pacific.

Castle Bros.-Wolf & Sons, Agents, Manila, P. I.

# CASTLE BROS.=WOLF & SONS

MANILA, P. I.

## Agricultural Implement Department

#### PLOWS "BENICIA"

ONE AND SIX DISCS
"BENICIA-HEACOCK"

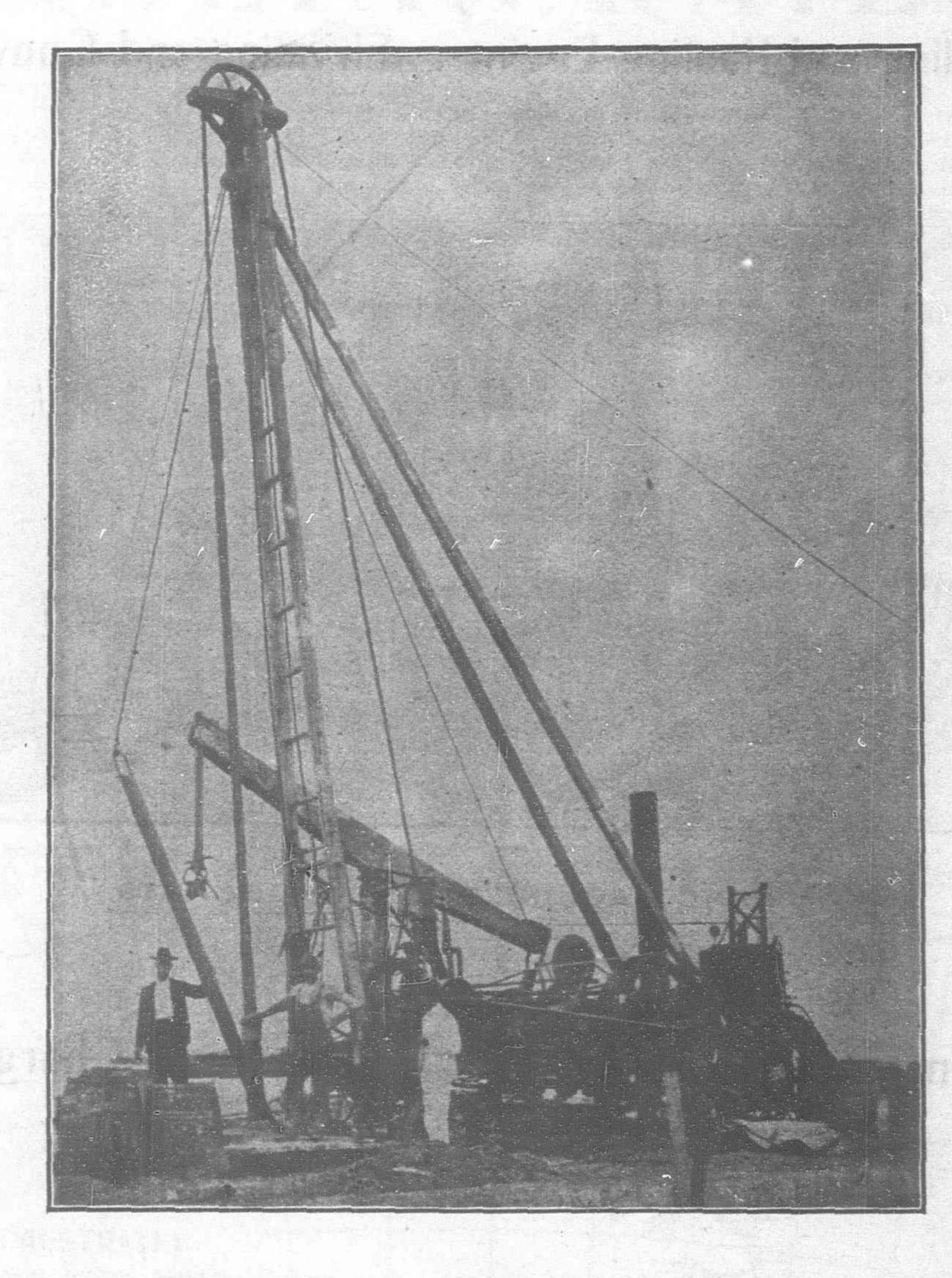
REVERSIBLE DISC

PLOWS

TILLER PLOWS
STEEL BEAM PLOWS
WOOD BEAM PLOWS
STEEL AND WOOD
BREAKING
PLOWS

STEAM PUMPS
HAND PUMPS

WIND MILLS
SUGAR MILLS, ETC.



#### CULTIVATORS

FIVE, SEVEN AND

TWELVE TOOTH

CULTIVATORS-CORN

AND SUGAR

ADJUSTABLE DISC

RAKES

RICE AND CORN

PLANTERS

MOWERS

REAPERS

BINDERS

RICE THRESHERS

RICE HULLERS

CORN HULLERS

### WELL-DRILLING

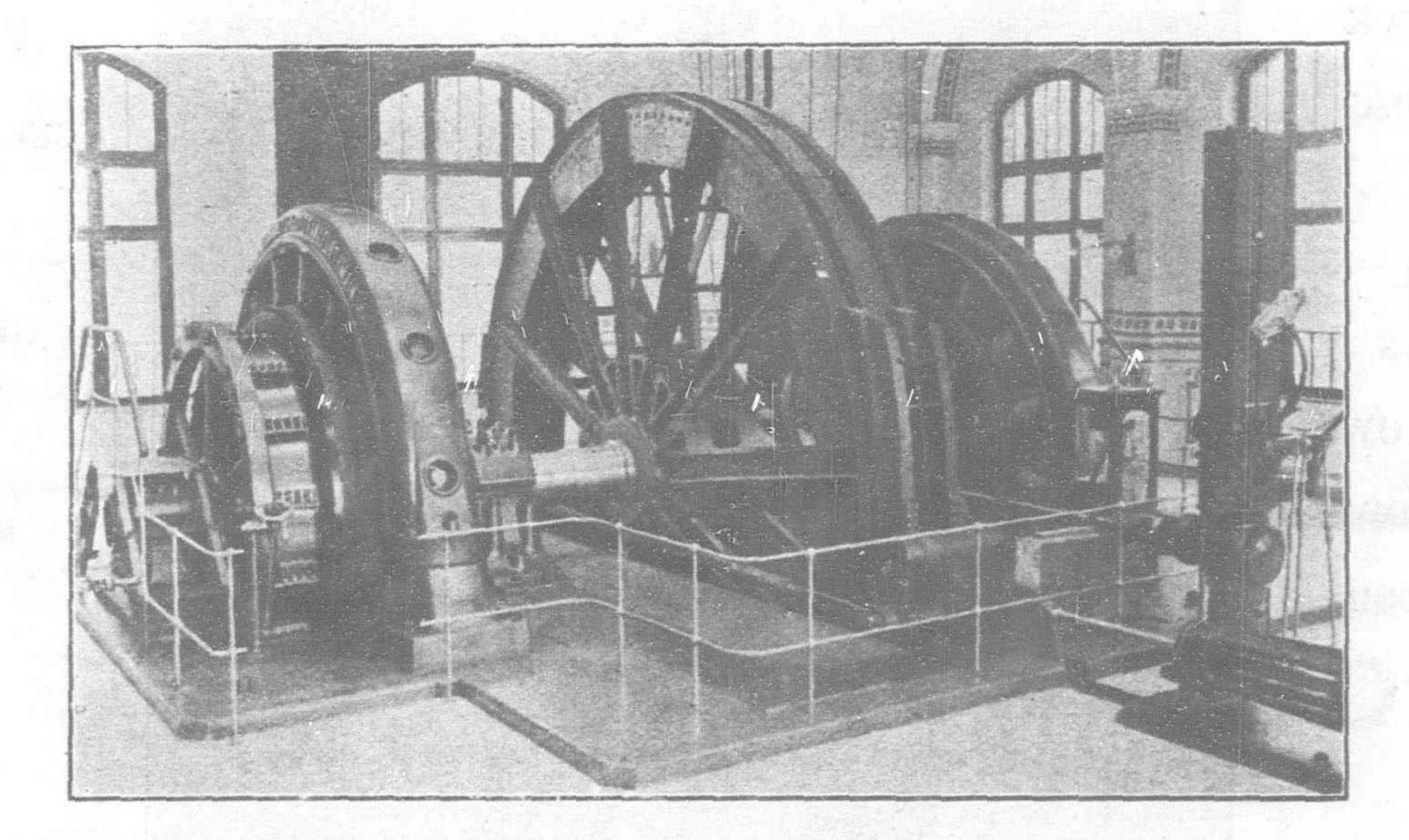
We are prepared to drill wells with the best equipped apparatus thus far introduced in the Far East

Wells can be drilled to a depth of from 1 to 1200 ft. Communicate with us for particulars and prices

# Felten @ Guilleaume-Lahmeyerwerke A.-G.

Electric Winding and Hauling Engines. Elevating and Conveying Plants







WINDING MACHINE FOR MINING PLANTS

Electric Fans, Pumps, Cranes, Air Compressors, Charging Engines

Siemssen & Co. 28 The Bund Shanghai

Sole Agents

# HE FAR EASTERN REVIEW

ENGINEERING @ FINANCE

VOL. IV.

MANILA, P. I., SHANGHAI, AND YOKOHAMA, JULY, 1907.

## AUSTRALIAN RAILWAYS

The Australian railways are up to date in the completeness of their arrangements, whether for the convenience of the travelling public, or for the safe working of the lines according to the Australian Traveler. New South Wales has the greatest volume of business of the Australian systems, and its railway and tramway transactions-the two services being controlled by the one administration (the Railway Commissioners of the State)-have an aggregate earning of over

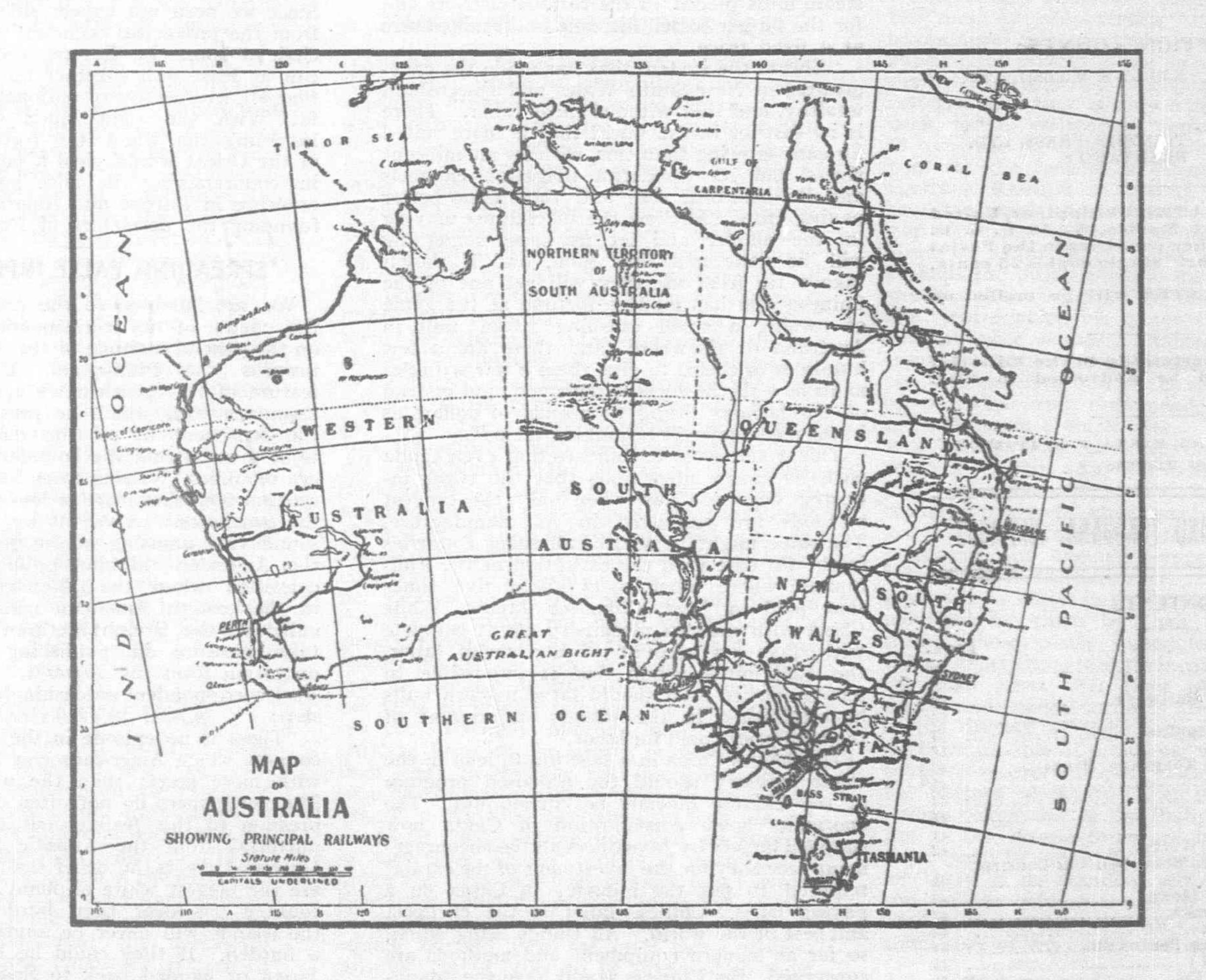
population of the State. The lines are laid to the standard gauge-viz., 4 feet 81/2 inches.

There are in use and running on all the principal trains carriages of superior modern type on bogies; sleeping cars built on the Pullman and Mann types are in use on the long-distance trains, as well as lavatory and corridor carriages provided with lavatory conveniences for first and second class passengers, and as the roadbed is substantial and well laid, a journey over any part of

owing to their not being so thoroughly opened up.

The Southern Hills are also conveniently situated, being reached from the southern line within 60 miles from Sydney. This district is not so elevated as the Blue Mountains, the highest point reached being at Exeter, 2,331 feet above sea level, and 93 miles from Sydney.

In this distance the magnificent reaches of the Hawkesbury River are crossed over



£5,000,000 per annum. The capital expended on the construction and equipment of the

lines has been £47,295,159.

The railway system consists of 3,390 miles of line, and the iron roads fairly traverse the country from end to end, extending from Sydney to the Queensland border at Wallangarra (492 miles) on the north, to Albury (392 miles) on the Victorian border on the south, to Hay (460 miles) in the south-west, and to Bourke (508 miles) in the west. Numerous, and in some cases lengthy, important branches lead off from the main lines, and afford the facilities of railway communication to the great mass of the

the New South Wales lines can be taken with the greatest ease and comfort.

One particular feature in New South Wales is the magnificent caves that are open to inspection, and lie within reasonable distance of the railway. The Jenolan Caves, 35 miles from Mount Victoria, and approached by a good road, are most popular, and the magnificence of their subterranean caverus is said to vie with anything of their kind in the world. Other cave country exists-such as Wombeyan (from Bowral), Yarrangobilly (from Cooma or Tumut), etc., which, while equally interesting, have not had the same attention, by the railway bridge, 3,000 feet in length, the largest structure of its kind in the Southern Hemisphere; while a few miles further ou, in crossing the divide between the main Hawkesbury waters and Brisbane water, a tunnel one mile two chains in length is passed through. This tunnel is said to be the longest in the Commonwealth.

The northern line from Newcastle is not only picturesque, but passes through the famous Hunter Rivey Valley, one of the most fertile districts in the State, rich in its production of corn and wine. The New England

(Continued on page 36.)

### THE FAR EASTERN REVIEW

GEO. BRONSON REA, M. E.

PUBLISHER AND EDITOR

#### COMMERCE :-: ENGINEERING :-: FINANCE

A Monthly Review of Far Eastern Trade, Finance and Engineering, Dedicated to the Industrial Development and Advancement of Trade in the Philippines and Far Eastern Countries

> PUBLICATION OFFICE: MANILA, PHILIPPINE ISLANDS

WILLIAM CROZIER Associate Editor

ANTHONY R. TUOHY Business Manager

CHINA AND JAPAN OFFICE: 39 Kiangse Road, Shanghai ROYAL P. LOWREY Manager

UNITED STATES GENERAL OFFICE: 91-93 Wall Street, New York City

> GREAT BRITAIN: PROBSTHAIN & CO.

14 Bury Street British Museum, London, W. C.

#### SUBSCRIPTION AGENTS:

HONGKONG	KELLY	E	WALSH,	LTD.				
SINGAPORE	4.4	4.4		6.6				
<b>Уоконама</b>	6.6	4.4	4.4	4.4				
SHANGHAI	6.6	44	4.4	6.6				
TIENTSIN	TIENTS	IN	PRESS,	LTD.				
WASHINGTON, D. C	BRENTANO'S.							

SUBSCRIPTION RATES: Philippines, United States, Canada, and Mexico, \$2.50 U. S. C. per year. To all other countries in the Postal Union, \$3.00 per year. Single copies 25 cents, U. S. C.

ADVERTISING RATES will be mailed on application.

Communications pertaining to the Editorial Department should be addressed to THE EDITOR.

ENTERED AT POST OFFICE, MANILA, P. I., AS SECOND CLASS MATTER.

#### MANILA, SHANGHAI AND YOKOHAMA, JULY 1907

#### CONTENTS

	4			1	PAGE.
Australian Railways					. 32
British North Borneo	Railwa	lys			34-35
A Sea Leviainan					9.0
Irrigation in the Phil Labuan Coal Mines	uppines	3	* > * * * * *		
Electric Installation in	Tongs	han M	ines	* * * * * * *	. 38
Bangkok Shipping					41
Damboo Sap	******				4.1
New Java Company					41
Trade Opportunities The Santa Mesa Rope	Works	*****			
Philippine Hardwood i	in Subu	rban (	Car Co	nstruc	-
Industrial Promotion,	Tenen				. 43
Uninese Kaliway Schel	mes				4.2
ATOM LUDITORISUIDA					4.2
TIAGE OF THE WASHING	E Leni	usuia	name or an arm		AA
Peking Syndicate (Ltd	(0)				. 45
Royal Lahore Mining Salasa Copper Mines	· · · · · ·		* * * * * * *		. 45
Far Eastern Company	Report	S			45
Mining in F. M. S					47
Number of Chinese Al	proad.				477
New Australian Terri	tory	*****			. 47
The State of Perak F. M. S. Railways		*****			48
Sungei-Pinang Bridge					49
esperanto cocieties					49
hinese Railways and	Mines				49
apanese Textile Mach	inery	Policel	******		51
The Japanese Training Penang Harbor Improve	mente	raiser	maru.	******	51
Bridging the Yalu	, and it was				52 54
essons in Esperanto					55
acinc mail nepult			Purchas applica		no.
dines, mining and Mil	nerais				56
hilippine Promotion.	on ota				57
ar Eastern Construction	on, ew	******			58
Temp Statistics ar Eastern Share Quo	tations				61
					5 100

#### SUGAR INDUSTRY IN CHINA

It would seem that while enterprising Chinese have succeeded in foreign countries in the sugar industry by utilizing modern machinery and methods, there does not seem to be any disposition on their part to introduce the same methods at home and develop the sugar industry in China where labor is available at a much lower price. Whether this disposition is warranted by the prejudices of the great mass of the Chinese people or the enterprising Chinaman finds it more advantageous to invest his capital and expend his energy abroad, the fact still remains that the Chinese sugar industry must continue to lag and foreign sugar monopolize the Chinese market unless something is done. Commenting on this rather remarkable phase of Chinese industrial life the Swatow correspondent of the North-China Daily News says:

"It is a pity that the Chinese will not endeavor to put the sugar industry on a proper basis. Their old obsolete methods are no good in these days of stern competition. Here we have labor plentiful and cheap, but for once that is not all; the cultivation and manufacture on a paying basis of sugar to-day not only requires cheap labor but also machinery, and that is where the Chinese fail to compete successfully with foreign sugars. Look at the enormous loss of juice every year owing to the obsolete methods of crushing the cane; why in an up-to-date mill the cane comes from the rollers as dry as a bone; but crushed here in the old-fashioned mills at least a quarter of the juice is lost. What is wanted is small steam mills placed in the various districts and for the farmer to sell his cane to the millowners

at a fixed price. "This is the system that has made the canegrowers in New South Wales and Queensland wealthy, and that without cheap labor. There is no district in the world that is more suited for cane-growing than this, with its magnificent rivers and its wonderful irrigation channels and its beautiful soil, and there is no better paying crop. Anyhow the officials are moving in the matter and let us hope something will be done and that soon, and if they'll take a tip from me they will get one of the Chinese who has made a fortune at the game of owning a small crushing steam mill in Australia or elsewhere (and there are a few hundreds of them) to give them a few wrinkles as to how the business is managed, and instead of the farmers losing thousands of dollars as

This would seem to indicate that even China with its cheap labor finds that the sugar industry does not pay when only the crudest methods are employed in its manufacture. The same might be said of all sugar countries in the far east with the exception of the Philippines where labor costs about five times that paid in Java, China or Japan. While China with modern machinery might compete with Java on account of her cheap labor, the Philippines would find it impossible to find a market even should large modern mills be established in the islands on account of the high prices paid for labor.

in the past they will be making them."

This leaves China in a position to lead in the sugar industry should the proposed program of the Chinese officials be carried out. The enormous home consumption of China now supplied largely by Java offers all the encouragement necessary for the investment of the capital required to put the industry in China on a paying basis. Chinese labor is the cheapest and best in the world. All things being equal, so far as modern equipment and methods are concerned, the Chinese would have the advantage over any section of the far east in the matter of reliable labor at minimum cost, the most important element in developing a well established sugar industry in this age of keen competition.

#### THE MAN IN THE COSY ARM CHAIR

The true situation in the Philippines, and it might be said of the frontier of any nation in the Far East, is admirably reflected by the China Mail in a recent editorial which follows:

"Judging by the constant appeals that are being made by merchants in Manila for consideration by Congress, the visit of Congressmen and Miss Alice Roosevelt made some time

ago under the guidance of Mr. Taft has not helped the islands any. From this party the merchants expected much. They hugged the fond belief to their souls that Uncle Sam would henceforth look with a more kindly eye upon the perspiring pioneers in the Philippines. Nothing has happened. Either the Congressional party carries no weight with Uncle, or the gentleman of the goatee, the star spangled waistcoat and striped pants reckons he knows what the Philippines want better than those in the islands do themselves. He does not! It is the old story of the man in the cosy arm chair at home and the sweating white slave in the Colonies. The man on the spot is calculated to be an idiot. Mostly he isfor being on the spot. However, the Manila merchants fed the Congressional party well and yet they still howl to be protected by having less protection. That seems paradoxical, but it sums up the situation—and incidentally shows that the way to a man's heart is not always through his alimentary canal. Perhaps the Congressmen were overfed and now woefully shake dyspeptic fists where they ought to throw bouquets. The Manila merchant has a hard row to hoe, but he is a strenuous agitator until Philippinitis attacks him. Then he sits down and murmurs the equivalent of Maskee!"

The Far East is just blossoming. From India to Vladivostock an era of remarkable development has been ushered in. The men who have blazed the trail have better prospect than ever of seeing their dreams realized. There is opportunity for all and in this transformation work there is no room for jealousies. Since we need not expect substantial support from the proverbial occupant of the cosy arm chair at home in Europe and America, we can at least pull together on the frontier so that all, irrespective of nationality, may benefit. With the right spirit of co-operation leavening the whole the foreign settlements of the Orient would yield a powerful influence in counteracting the false impressions given credence in Europe and America, and in confounding the detractors of Eastern Asia.

#### SPREADING FALSE IMPRESSIONS

We are indebted to the London Times for the views of its correspondent in New York on the general attitude of the American people towards the Philippines. The remarkable feature of this gentleman's conclusions is the assurance with which he presumes to reflect the sentiment of all the different elements to be found within the boundaries of the western republic. Writing from New York, where egotism flourishes more or less in certain circles the conclusions arrived at by the Times man sound very amusing to the great majority of the American thinking public who are not consulted when the Thunderer's emissaries in the eastern American metropolis seek to enlighten the British brethren at home. We take pleasure in publishing the following quotation from the Times to which the New York correspondent unblushingly admits authorship:

"There is no episode in the history of their country which Americans now look back upon with more regret than the war with Spain, The newspapers do not often care to give expression to this feeling, but it is practically universal from the Atlantic to the Pacific. Universal also is the belief that the Philippines are the biggest white elephant with which the country has ever been burdened, and that the islands will never be anything more than a burden. If they could he handed over to Japan or handed back to Spain without loss of national dignity it would be done. This, of course, is impossible, but the heartfelt regret of the American people for the Spanish adventure can be and is manifested by the offer of friendship to Spain, which it is hoped Spain will accept."

The American people's sense of humor must certainly be dangerously exposed when such comment is taken seriously by a journal with a reputation for real seriousness.

It might be remarked in passing however that even New York where the Times correspondent's hat is hung up has faith in the future of the Philippines. New York capitalists are investing \$30,000,000 in Philippine railroads and when the Philippine government desires

to float a loan it takes precedence in the money market over all other bonds and brings a handsome premium. Not only is this true but there are about 10,000 foreigners and Americans in the Philippines who have faith in the future of the American possessions. Neither the capitalists of New York and London nor the foreigners and Americans in the Philippines, who are well informed and interested, indicate in any form that they believe the Philippines to be a white elephant on the hands of the United States. And if not a white elephant in the possession of the United States in the opinion of those directly interested, it is difficult for us to accept the conclusion of the Times correspondent in New York, seditious as our attitude may appear.

#### NEW INDUSTRY FOR HONGKONG

The establishment of a plant for the manufacture of high grade dry batteries at Hongkong by the Oriental Battery Co. introduces a new industry in the Orient and adds to the prestige of Hongkong as a manufacturing center. Mr. F. H. Thompson, the well known electrical engineer of Manila, is president and general manager of the company. Mr. Thompson recently returned from a trip to the United States where he made all his arrangements to start operations at an early date.

Mr. Thompson has purchased at great expense two of the best formulas available, and as the dry battery business is operated as a secret process in the United States where most of the dry cells used at the present time are manufactured, and with headquarters in a free port he will be in a position to meet all competition

in the Orient.

It takes three months from the time the American cell is made to get it to the Orient, consequently it is "old" when it gets here and is practically of little value, the hot, moist sea voyage having deteriorated its working value to 20% of its former power. The consumption of dry cells is increasing and to be able to obtain fresh first-class cells direct from the manufacturer will be a step in the right direction. The company announces that only the highest class of material will be employed in the manufacture, French carbons and German chemicals to be imported especially for this work.

A small supply is expected to arrive in Manila in a few days and all the experimenting will be conducted there in order to ascertain the best proportions to be used in the manufacture to secure the best results in this climate. A large shipment of materials has been ordered and is being assembled. It is expected shortly to arrive in Hongkong where the factory will be started immediately. It is the purpose of the company to establish branch offices in Japan, China, Straits Settlements, India, Philippines, and Australia.

The selection of Hongkong for the establishment of the factory was influenced by the fact that it is a free port and this would place the manufacturer at an advantage in competing

with the American product.

#### NEW HONGKONG NAVAL DOCK

The completion of the new naval drydock at Hongkong is the result of seven years of well directed effort in rounding out the extensive plans of the British government for the extension of the naval yard there and improving its facilities to meet every possible condition. From time to time since the inception of the extensive works over \$6,000,000 have been appropriated for the purpose and the christening of the naval dock recently demonstrated the successful completion of the most important section of the improvements. The new dock is 550 feet in length; 95 feet wide at the entrance with 30 feet over the sill at low water and is large enough to accommodate the largest battle-ship afloat. It is 70 feet wide on the floor and 120 feet at the top. The floor is built of combined concrete and masonry fourteen feet in thickness and the side walls are 37 feet thick at the bottom and ten feet thick at low water level.

The entire scheme for the extension of the navy yard included an increase of the area from the original four and three-quarters acres to 39 acres while the new tidal basin is now spread over an area of nine and one-quarter acres and embraced the reclamation of the foreshore

from Murray road to the war department. The basin referred to has a depth at low water of 30 feet and a wharfage 2900 feet in length.

The early construction was delayed for the reason that it was difficult to secure satisfactory foundations. Borneo piles fifty feet long were imported for the purpose and this further delayed the work. However all obstacles were overcome by the persistent contractors. The concrete blocks used were made at Matautok; over 280,000 feet of dressed stone from the various quarries operated by the contractors were used, and of this 60,000 feet went into the construc-

tion of the seawalls.

All that remains to be done to put the finishing touches to the dock and make it available for use is the removal of the large cofferdam built to enclose the foreshore and some dredging in front of the dock. It is announced that this work will be completed in at least seven months when the admiralty will take the entire extension over from the contractors. In the meantime the admiralty will have to complete the construction of the pumping station and provide a plant to operate the dock before it may be utilized. It will also be given some time to settle before it is put to use in view of the character of the ground upon which the foundations are laid.

The contractors, who have so successfully overcome every obstacle and brought the work to a successful conclusion, are Messrs. Punchard, Lowther & Co. A. J. Williams, A.M.I.E., assisted by R. H. King, A.M.I.C.E., is the engineer in charge of this important undertaking.

#### MANILA AS A SHIPBUILDING PORT

"It was not to be expected," says the Hongkong Telegraph, "that the shipbuilding and shiprepairing firms of Manila would be content to view with equanimity for any length of time the passing of valuable and remunerative contracts from the local dockyards to those of other countries, and that these firms are awakening to a realization of their lost opportunities is apparant from an editorial which appears in the latest issue of the FAR EASTERN REVIEW. Whenever it has been found necessary to call for tenders for the construction of the mosquito craft required by the Insular Government, for repairs to transports, or for the periodical overhauling of the U. S. squadron in the Pacific, the offers submitted by the shipbuilders of Hongkong, Singapore and Shanghai have been given special consideration. But the military and naval authorities have not been blind to the claims of the insular dockyards to a share in the shiprepairing work required by the Government. If the Manila yards were in a position to cope with the demands of the authorities and carry out the larger contracts in an expeditious and efficient manner, there is not the slightest doubt that foreign competition would not stand the ghost of a chance against the local rivals. As it is the Manila dockyards exist in name alone; they may be capable of utilising their resources in the most surprising fashion, but these resources are extremely limited. When the shipbuilding firms in America's possession gnash their teeth in jealousy that foreigners should snap up the rich contracts which should rightly belong to the American colonists they are apt to forget that shipbuilding and engineering in the three British centres of manufacture in the Far East have been reduced to a fine art. Enormous sums have been expended on the laying down of plants which in many cases are seldom brought into use once every twelvemonths; yet in order to be prepared to meet every emergency, to provide for the wants of the great liners which arrive from Europe and America, the policy of "aye ready" has been followed to its extreme bounds, with the result that no difficulty baffles the dockyards, and no demand be it never so unique is classed as impossible. The Hongkong and Whampoa Dock Company, to take a concrete example, have devoted millions to the equipment and plant-efficiency of their yards, and have gathered together a staff of managers, mechanics, engineers and workmen the product of whose combined skill is in no way inferior to anything that hails from the Clyde or the Tyne. That money embodied

in docks, machinery and labor-saving ap pliances has been sunk in Hongkong and it constitutes one of the chief assets of Hongkong. Much of the highly-specialised machinery installed at Kowloon must necessarily represent a dead loss to the company from the standpoint of remunerative financial returns, but if the concern is to maintain its reputation and proved standard of efficiency it must be qualified to undertake every possible combination of technical requirements. It is an old story now that the Kowloon docks created a record when they were called upon to dismount and replace the big guns of H. M. S. Albion, but such a feat was only rendered possible by the foresight of the managing staff in being prepared to fulfil an order which may not recur again within the next generation. When the Manila shipbuilding companies find themselves pitted against competitors of the calibre of the Hongkong and Whampoa Dock Co., it is no discredit if they fail to come out on top. But to cauterise their wounded feelings with the assertion that the principal British dockyards in China are in receipt of special favors from their Government, and are accorded extra facilities in carrying on their purely commercial undertakings, is as ridiculous as it is absurd. Whatever has been done by British engineering companies in the Far East has been done on their own initiative, and not infrequently in face of direct Government opposition. Here in Hongkong the Admiralty will at no distant date be in a position to ignore the Kowloon docks, and the same may be said of Singapore. If the Manila firms are determined to enter the race for shipbuilding contracts all the advantages are on their side. Their chief handicap at present is the duty which a shortsighted Government has imposed on imported material, but that is only a temporary drawback, for an enlightened democracy is bound to recognize the folly of penalising local industries for the benefit of outsiders. The FAR EASTERN REVIEW, in dealing with this question, recognizes the fact, also, that the exclusion of Chinese skilled labor has a detrimental effect on shipbuilding in the Philippines, but perhaps the dusky Filipino may yet prove his worth and show himself to be possessed of all the virtues which his sponsors claim for him. The ultimate position attained by the dock firms of Manila must depend largely on the people themselves, and all the caviling and hints of prejudice and unfounded assertions will not help them a single iota. The FAR EAST-ERN REVIEW has taken up their cause, and seeks to explain away the inability of Manila firms to undertake those important shiprepairing contracts which have gone to Hongkong or Singapore by references to official preference and unequal competition, but the best advice to the ambitious yards of the Philippines is to follow in the furrow that has been ploughed for them by their foreign competitors, whose costly experiments and hardearned experience are at their command. When they can prove that their plant, accommodation and general facilities are equal to those at the disposal of their competitors and that they are capable of producing work which will compare in every respect with that of other Fas Eastern dockyards, then the doom of the foreign competitor in the Philippines is sealed But if the Manila firms are bent on success they must be up and doing for themselves for there is no standing still in these days, and fortune seldom comes to those who are filled to the exclusion of all else with a super abundance of envy and jealousy."

#### THE ESPERANTO CONGRESS

An article in a Berlin paper on the Esperanto congress, which will take place at Cambridge in August, says: "There will be more than three thousand delegates present representing nearly every country in Europe, and the proceedings will show what progress the universal language has made. In order to show one feature which has not been largely dwelt upon, a Shakespearian tragedy has been translated into Esperanto and will be performed while the Congress is in session. For practical purposes the policemen and the waiters in the large restaurants will learn the language, so that they may converse with the delegates from other countries" A THE PROPERTY OF THE PROPERTY OF THE PARTY OF THE PARTY

gradien and

#### **AUSTRALIAN RAILWAYS**

(Continued from page 33.)

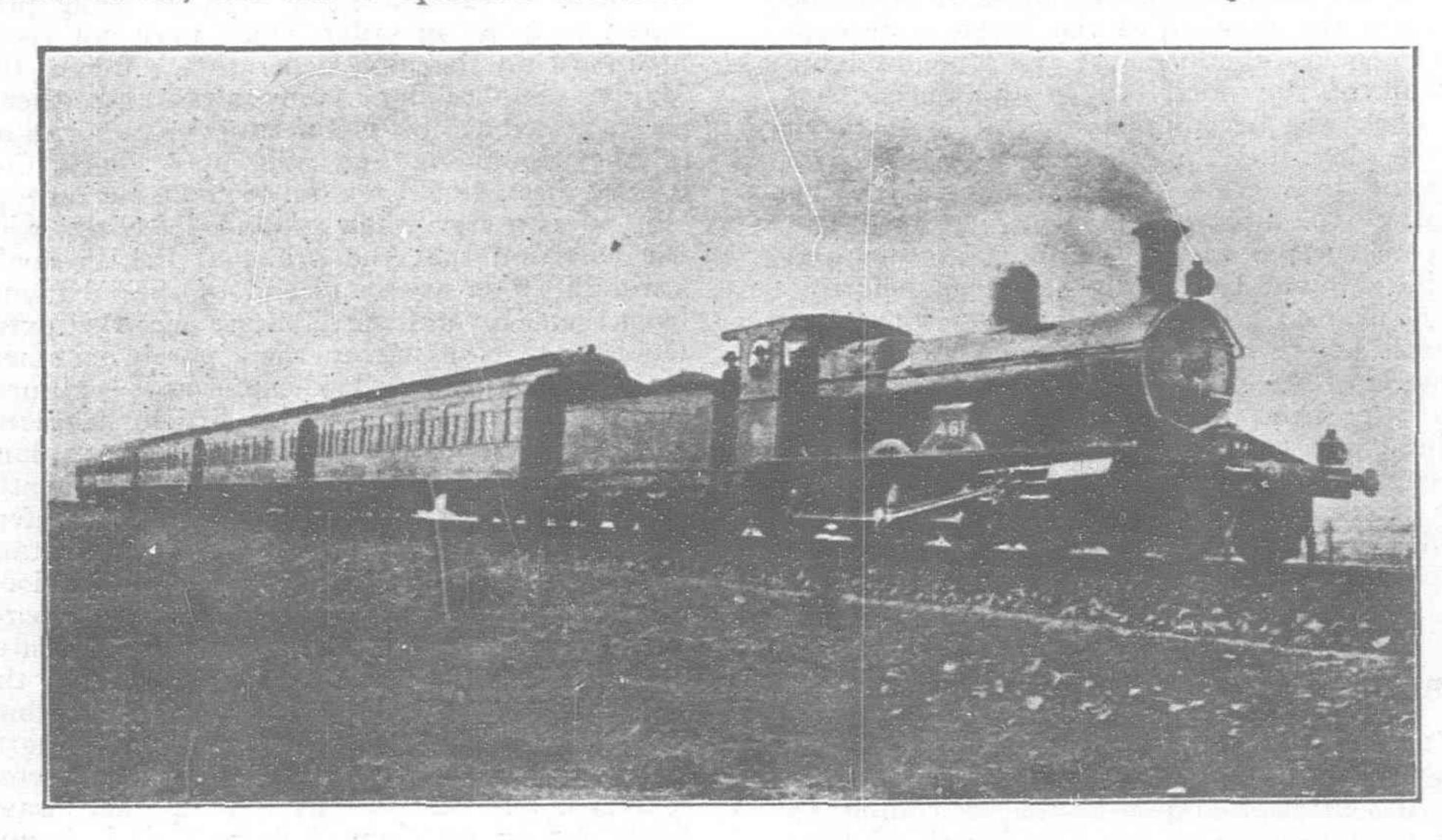
district, on the highway between Sydney and Brisbane, offers magnificent scenery. The rails on this line reach an altitude of 4,500 feet.

South of Sydney, along the coast, is the famous Illawarra district, long known as the "Garden of the State." Shortly after leaving Sydney the line commences to rise from Cook's River, and has a splendid overlook

#### RAILROADS OF VICTORIA

Victoria, with its area of 87,884 square miles, equal roughly to that of England, Wales, and Scotland, is, with the exception of Tasmania, the smallest of the States of the Australian Commonwealth, but has a length of 3394 miles of State-owned railways in active operation, giving her a far greater proportion of mileage to area than any of the other States.

Melbourne, the splendidly laid-out and substantially-built capital city, is encircled with a network of lines forming a comprehensive suburban system and providing cheap and frequent means of intercourse between the suburbs and the metropolis.



SYDNEY AND MELBOURNE EXPRESS (Sydney to Albury Section).

of Botany Bay; then, crossing George's River, it skirts for miles the magnificent heritage, nearly 40,000 acres, reserved for the people, and known as "The National Park."

In regard to business travel, the train accommodation and train services are both excellent, and the suburban business alone in and out of Sydney runs into big figures, the suburban passenger journeys made during the past year numbering 33,347,246. There is also a big volume of business, although not so large, in and out of Newcastle. Most popular trips are run between the principal capitals-Adelaide, Melbourne, Sydney, and Brisbane-express service being run throughout. The distance between Sydney and Melbourne is 582 miles, and the journey, with a number of stops, is accomplished in 171/2 hours. Considering the nature of the country that has to be passed over, the lines having to surmount gradients as steep in places as I in 30, where the Southern Hills are climbed, the running is excellent. It is also conveniently fixed so that the greater part of the journey is accomplished during the night, a minimum interference with business therefore being made. To Brisbane the mail trains accomplish the journey (725 miles) in 28 hours, and as in the case of the Melbourne journey, the train has to pass over a number of severe gradients, the maximum altitude on this line being 4,500 feet above sea level, while there is a good deal of intermediate station business to be done. The accommodation provided, however, is of the most comfortable character, Mann and Pullman type sleeping cars being available on the trains, while the Melbourne express is a corridor train throughout.

A word or two may be mentioned as to the freight business of the state which realized last year on the railways £2,628,076 and covered the carriage of 7,400,658 tons of goods as well as 5,071,214 head of live stock. The rates appear reasonable to the producer as for instance all the agricultural products are carried from the interior to the sea at the rate of 14s. 2d. per ton for 500 miles. The railroads are responsible for the development of the interior and at the terminus at Darling Harbor splendid facilities have been provided for the facilitating of freight handling.

During the year ending 30th June, 1906, close upon 60,000,000 of passengers were carried by suburban trains, notwithstanding the fact that during the same period 54,000,000 passengers travelled by the cars and omnibuses of the Melbourne Tramway Company, a very large proportion of whom were drawn from districts where the cars ran in direct competition with the trains instead of acting as feeders to them.

mine the advisability of building the road. Four Europeans accompanied the expedition, two for the Government and two civil engineers representing the London parties who will have the contract for building the road, and a representative of the British Borneo Exploration Company (Limited), which has the sole mineral rights for British North Borneo. Large coal measures were discovered about 40 miles from the east coast, and the road will be built to them from Surodong. Although it is possible to build a railroad entirely across the island, it would not be practical, as the country is a vast, dense jungle, very thinly populated.

"The railroad from Jessleton to Beauford was constructed by the same firm, and 30-pound American (Carnegie) steel rails were used. It is claimed that these are light, and that 45-pound rails would give more satisfaction; however, in other respects there was no complaint, and the American steel rails should be used for this new road.

"The civil engineers are now starting a survey for the railroad from Tanjong Batu, on Marudu Bay, in the north, to Sandakan. This road will be about 150 miles in length and will be constructed by the same firm. A company has been formed to build this road and will receive from the British North Borneo Government alternate blocks of land, 40 miles square, along the entire route. This road will pass through large deposits of iron and its northern terminal will be at Tanjong Batu, where the manganese mines are located. This second expedition will be along the line in touch with the seacoast, where supplies can be sent ahead and should take about three months.

"The first expedition passed within one mile of Dutch territory and penetrated a country never before entered by a white man, suffering many hardships and dangers from the savage tribes encountered."

#### A SEA LEVIATHAN

The Adriatic, the newest and greatest of the White Star liners, arrived at New York on her maiden voyage from Liverpool on the 16th ultimo with 2,294 persons on board, including 700 cabin and 1,802 stage passengers. The Adriatic, says a New York dispatch, is the most complete ocean traveller afloat. Her length



HAWKESBURY RIVER BRIDGE ON THE NEW SOUTH WALES RAILWAY SYSTEM

#### BRITISH NORTH BORNEO RAILWAYS

Consul Lester Maynard reports from Sandakan on the two railroads to be constructed in British North Borneo. Mr. Maynard writes: "The surveying expedition across the island of Borneo arrived at its destination, Surodong, at the mouth of the Surodong River, on the southeast coast of British North Borneo, on November 23, having been in the jungle for seven months, during which time they covered about 210 miles. The expedition left Jessleton on May 1, 1906, its object being to determine the possibility of building a railroad across Borneo, and by prospecting for minerals and

observing agricultural possibilities to deter-

over all is 725 feet 9 inches; breadth, 75 feet 6 inches; depth 50 feet; gross tonnage, 25,000; displacement, 40,000 tons; accommodations for 3,000 passengers and a ship's company of 350, eighteen compartments and space for second cabin and steerage passengers that would have been luxurious a few years ago for first saloon passengers. The Adriatic is not built for speed, but for comfort. She is fitted with all the conveniences found in most modern hotels—Turkish baths, massage rooms, photographic dark rooms, elevators, gymnasiums, and everything else one can imagine for comfort. The commander of the new Adriatic is Captain E J Smith, R.N.R.

## IRRIGATION IN THE PHILIPPINES

When the Philippine government concluded the purchase of the Friar lands of the archipelago, it took over a number of extensive irrigation systems in Cavite, Bulacan and Laguna These systems cover an area of approximately 70,000 acres and represent the most desirable part of the agricultural lands included in the purchase

In addition to these irrigated areas, there is the area in the northern systems where the Igorots thrive on their terraces built on the sides of the mountains. These people are completely isolated, yet their system of irrigation has been in operation for centuries and long before any Christian influence had reached the islands. It is difficult to make an estimate of the area covered by these scattered systems as they dot

Naic estate, both situated in the province of Cavite, as well as those in Laguna. The Imus estate covers an area of almost 46,000 acres and of this approximately 23,000 acres is included within the area under irrigation. The report, dated July 7, follows:

"I have the honor to report the completion of the repairs to the irrigation system of the Imus Estate, including the Molino Dam and Tunnel, the Marcelo Dam and the Julian Dam.

"The amounts estimated for these repairs were as follows:

Marcelo Dam. . . Julian Dam . . . .

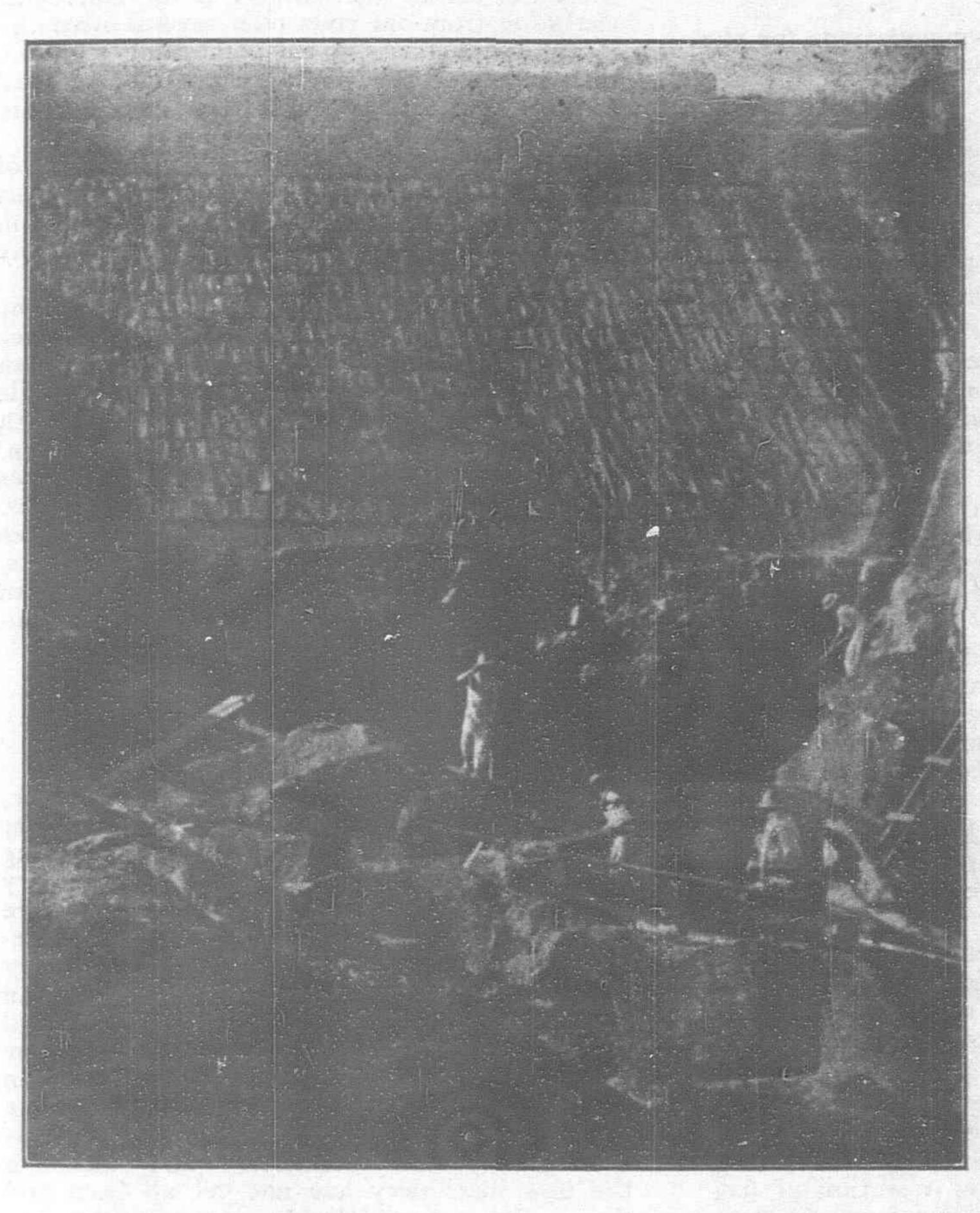
Molino Dan & Tunnels P2000.00 by Mr. Labelle. 1025.00 ,, ,, Westerhouse 2100.00 ,, ,,

> P5125.00 Total. . .

only material available) and its sectional area increased accordingly.

MARCELO DAM.

"The site of this dam is in a gorge cut through solid adobe stone with almost vertical walls, A pocket had apparently worn into the stone bed of the stream over which the dam was constructed, the space being filled in with rubble masonry laid in lime mortar, containing about 130 cubic yards. The mortar disintegrated and the material gradually scoured out to a point within six feet of the face of the dam which undoubtedly would have resulted in the destruction of the entire dam but for the fact that the reservoir originally formed by the dam had filled up with gravel and soil to within a few feet of the dam head



SAN JUAN DAM, CALAMBA, LAGUNA, P. I., PREVIOUS TO BEING REPAIRED .- DEPTH OF WATER 18 FEET



SAN JAUN DAM, CALAMBA, AS REPAIRED WITH REINFORCED CON-CRETE CONSTRUCTION

the mountain sides wherever a trail may lead, and since the Igorots are primarily an agricultural race, it might be said that they have under the control of the different hill tribes more extensive and substantial works than may be found anywhere in the world outside China and Japan where similar systems are to be found. When the Rureau of Lands assumed charge of the Friar lands in 1905, it was found that as a result of the insurrection many of the irrigation systems on the different estates were out of repair and the Bureau of Engineering made a careful survey with a view to restoring them to their former condition and add such improvements and extensions as would increase the production of the estates affected.

Mr. H. F. Labelle, assistant engineer, was detailed for this work and an exhaustive report with recommendations were submitted. The recommendations made have been generally followed and almost every system involved has received more or less attention. This work has been under the direction of Mr. Ernest J. Westerhouse, district engineer of the Bureau of Public Works. Some idea of the work may be secured by a reference to his report on the irrigation system of the Imus estate and the

"The actual cost of the work as completed, being in accordance with plans and specifications as previously approved, is as follows:

Labor, materials, etc. (including 200 Bls. Superintendency . . . . . . . . . . . . . . . . 290.88

Total. . . . P5068.29

MOLINO DAM AND TUNNEL.

"Repairs to the dam proper were of a very light nature, including the surfacing over of disintegrated places over the superior crest and exterior slope, patching up walls of the intake, clearing the masonry of vegetation and other minor repairs. The most extensive work was done on the tunnel and main ditch. The latter was cleared of brush and undergrowth and the accumulated silt and caved in matter removed for a distance of 1,000 meters. Some rubbish was removed from the tunnel, although as a rule the tunnel was fairly clean. At the outlet to the tunnel the old adobe arch had caved in for a distance of about ten meters. This section was repaired by the construction of a concrete arch over all, 6" thick at the crown and 12" thick at the haunches. The concrete was made of an inferior grade of gravel (the

"Suitable material for concrete could not be secured without great expense and the remoteness of the place made cement or lime exceedingly expensive owing to the long haul over a poor road for part of the way. To economize on concrete a reinforced concrete apron was : designed to span the opening, supported at the toe of the dam by a concrete wall 12" thick and 9 feet high, protected on the down stream side by the natural adobe stone. At the intersection of the exterior slope with the apron a reinforced concrete beam was thrown across the opening with a clear span of ten feet. To guard against further disintegration of the old masonry face a concrete wall five feet thick was built up against it with a roof extension to the beam, thereby also protecting the overhanging masonry of the exterior slope.

"For the beam and apron a mixture of 1 cement and 4 unscreened gravel was used reinforced with 1" and 38" plain rods, respectively. All other concrete consisted of 1 cement and 6 unscreened gravel. Bamboo was used almost entirely for false work and owing to its little value was not removed.

"The entire dam was cleared of all vegetation and all disintegrated parts were plastered over with cement mortar.

"From the intake the main ditch and tunnel were cleaned out and two sections with a total length of twelve feet were arched over with concrete.

#### JULIAN DAM.

"The dam itself is in a fairly good state of preservation. All vegetation was removed from the masonry and disintegrated surfaces plastered over. The crest of the spill-way is but about four feet below the elevation of the surrounding country and not being able to carry all the water in cases of a very heavy flood the water worked its way round the end of the dam from a point on the main ditch about 100 feet below the intake returning to the stream just below the dam. In falling over the bank of the stream the erosion became so great that it threatened a new channel leaving the dam high and dry. To overcome this a retaining wall was extended out from the end of the dam to a point well beyond the place of overflow, keeping the water within the bounds of the main ditch. The retaining wall was constructed of concrete consisting of 1 cement and 6 unscreened gravel, with a total length of 95 feet and containing about 900 cubic feet of concrete. The average cost of concrete on the three dams, not including superintendency, was \$\mathbb{P}\_{23.35}\$ per cubic yard."

On the Naic estate the irrigation system which covers an area of over 5,000 acres all the repairs have been completed, and in a recent report Mr. Westerhouse announces the repairs to the Biñang estate and the San Juan estate dam on the Calamba estate, Laguna. His report follows:

"I have the honor to advise you that in addition to the reports on work previously submitted, Bancud Tunnels Jan. 4th, 1907, Naic Estate April 12th, 1907, and Imus Estate July 7th, 1907, two projects have been completed under contract, Biñang Hacienda Building Repairs and the San Juan Dam Repairs.

"Repairs to the Biñang Hacienda Building consisted of the replacing of 96 sheets of G. I. roofing with corresponding purlins on the Camarin; light repairs to the roof of the Hacienda Building proper, light repairs to the cornicing and the replacing of 25 pieces of guttering and light repairs to a section of exposed tile flooring where one of the beams had decayed. The total

contract price was \$\mathbb{P}\_{435.00}\$. "The San Juan Dam was repaired in accordance with plans and specifications approved by the Director of Public Works, the contract price being \$\mathbb{P}\$1889.00. The location of the dam is in a gorge of solid adobe stone with a narrow deep channel worn into the stone bed of the stream about twenty-four feet deep. The masonry of the old dam gradually disintegrated in this channel seriously undermining the dam and threatening its destruction. The span of the channel averaged about 16 feet with vertical walls of hard adobe stone. A curved concrete apron was designed supported by three concrete beams across the channel, one at the toe of the dam, one at the intersection of the exterior slope and the apron, and one at an intermediate point. The concrete course of the apron was reinforced longitudinally with 1" plain rods spaced I'on centers and transversely with similar rods spaced 2' on centers.

"The concrete for the apron proper was 6" thick and consisted of 1 cement and 4 unscreened gravel. The concrete for the beams was of the same proportions, each beam being reinforced with five I" plain soft steel rods. An interior wall was constructed for the protection of the old masonry remaining intact with an overhead roof construction for the protection of the overhanging masonry from the wall to the beam supporting the upper end of the apron. A 12" toe wall was also constructed immediately below the lower beam for the protection of the masonry below the apron.

"A number of minor repairs were made to the flush gate and masonry surfaces of the dam.

"This makes the total expenditure on irrigation works for the fiscal year as follows:

Bancud Tunnels ...... P8247.09 Malabon Estate Balayung Dam & Tunnels... San Juan Dam ..... Molino, Marcelo and Julian Dams..... Biñang Hacienda Building.

3680.35 Naic Estate 1889 00 Calamba Estate

5068.29 Imus Estate 435.00 Biñang Estate

Total..... 19319.73

"The above does not include superintendency on projects investigated and reported on without work being inaugurated and 200 Bls. of cement delivered for work on Tunnel No. 5 for which no bills have been rendered to date. These items will bring the total expenditure to about P21,000.00, leaving a balance of about P4,000.00."

In addition to these estates some repairing has been done on the Santa María de Panda and the Lolomboy estates in Bulacan and on the irrigation works on the estates of San Francisco de Malabon and Santa Cruz de Malabon in Cavite. The area covered by the irrigation systems is distributed among the different Friar Land estates as follows:

Imus, 23,000 acres; San Francisco de Malabon, 14,000; Santa Cruz de Malabon, 12,000; Naic, 5,000; Calamba, 700; Santa María de Panda, 12,500. All these figures are approximate as all the property included in the transfer has not yet been surveyed.

In forwarding the recommendations for the repairs of these works with his endorsement, Director J. W. Beardsley called attention to the fact that the irrigation systems are essential to the cultivation of the respective estates and the value of the works extended into the millions as they stood in 1905. He also added the following remarks:

"Attention is respectfully invited to the following general needs of the government along the lines of irrigation:

"An accurate knowledge of existing works of construction and the importance of an effective system of maintenance and extension of such works to the agricultural development of the islands.

"A study of the Spanish laws now in force relating to the use of irrigation and the customs relating to the use of the irrigation waters, which, on account of usage become equivalent to legislative enactments.

"The drafting of revised laws which shall promote irrigation and protect the rights of landowners and water users. Such laws should be based on the best practices prevailing in the United States, modified by local usages, laws, and customs."

These recommendations have been followed generally and as the demand for extension of the works increases the government is prepared to meet it.

Some idea of the general character of the country where the irrigation systems are in operation and the character of construction may be gathered from the following excerpts from Mr. Labelle's report.

"The lower part of the province of Cavite extending from on the east coast of Manila Bay from Bacoor to Maragondong and stretching some fifteen miles inland, is a section of flat rolling country rising gradually from the bay to elevations of from 600 to 900 feet above the sea. This whole area is cut by numerous rivers flowing from the highlands and running mostly all from south to north, in such a way that they are parallel with each other. Between these rivers and arroyos the land is arable and appears to be of good quality.

"The country rock can be divided into two general classes. The familiar 'tuff' met almost everywhere in central Luzon and a kind of half baked clay which cannot be traced to volcanic origin.

"The rivers of Cavite offer exceptional facilities for the study of the 'tuff' formation as the beds of the rivers have mostly all been formed by denudation and therefore the stratification of the country rock can easily be made.

"Lime mortar seems to have been used exclusively but hydraulic lime mortar is seldom met in the construction of these dams. Only in exceptional cases is Roman cement seen.

"Notwithstanding the general use of common lime mortar in the dams of Cavite leakage through the dams seldom exists and the leaks met may have been caused by dislocations produced by earthquakes. These earthquakes, however, never caused any considerable damage to the dams in the Cavite district. Only one dam, the Marcelo, has developed any crack and this may have been caused by a settlement

of the masonry just over a cave excavated under the dam by the falling water, for the crack is in that part of the dam just above the cave. There is no leakage from the crack and it may be but superficial. The experience in Cavite dams shows that there is nothing to fear for their stability on account of earthquakes and that it is not necessary to adopt an additional factor of safety on that account.

"The main deterioration in the dams the writer has seen appears to be met in the aprons of the dams with curved profiles, in fact there are very few aprons which will not require considerable

repairs. "Above each dam and in close proximity to it there issues a tunnel or canal which conveys the water to the main irrigation ditch, usually located by the side of the main roads and invariably on the west side of the same. These main ditches are generally supplied by more than one river. Another way of conducting the water across the country is by conveying the water from one river over several others by means of aqueducts, to the point of distribution, the waters of the rivers spanned being used farther down the country and running into other dams.

"The dams of Cavite offer a great variety of profiles. The section at least in the larger dams is always generous. With but one exception the downstream slope of dams is invariably to a or over.

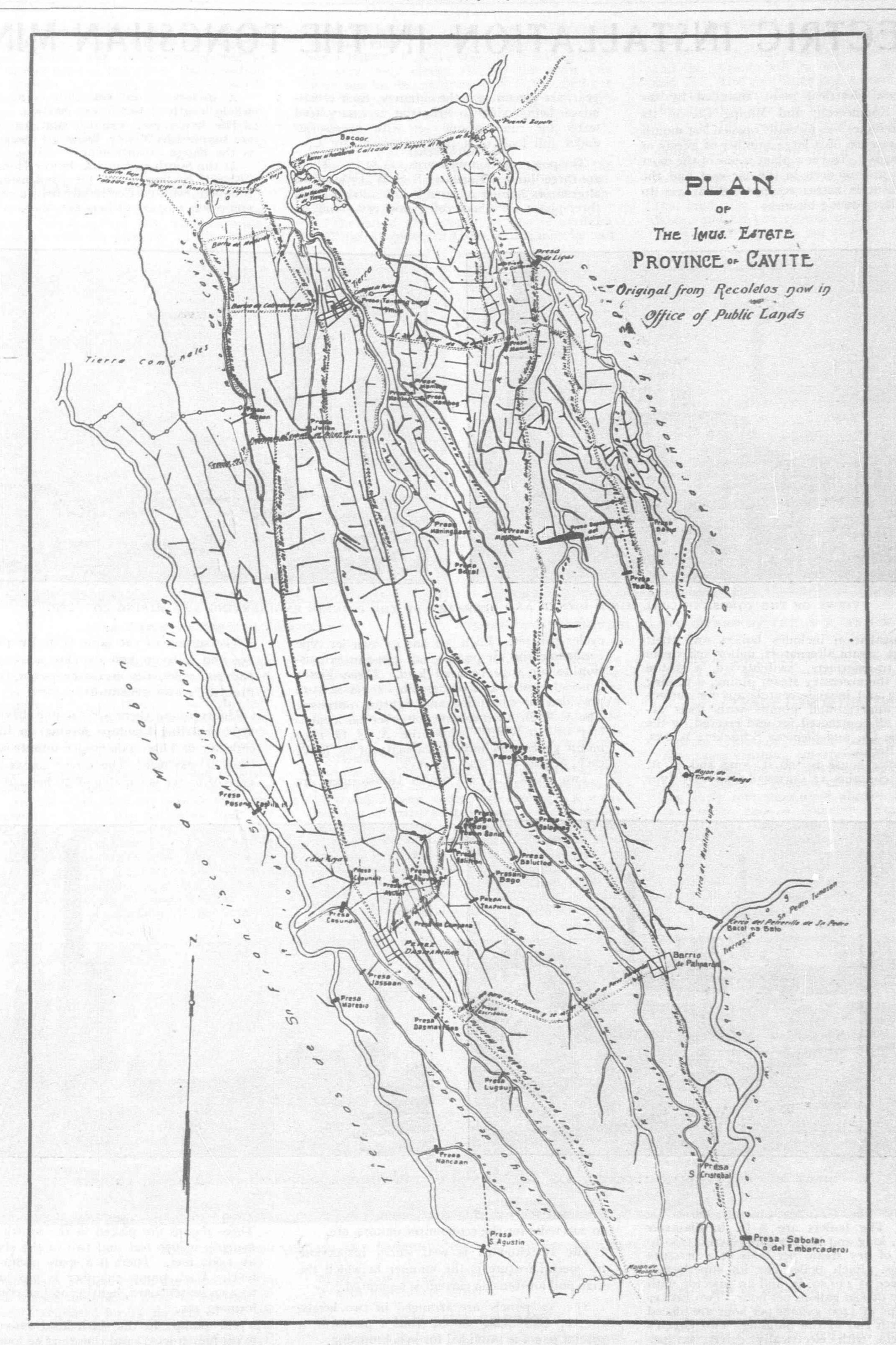
"The dowstream face is either stepped, straight or with the ogee profile, or rather a straight face with a curve at the top and another forming an apron at the bottom. In the stepped profile the courses are laid horizontally and with the same thickness of bed from bottom to top. This thickness of bed never exceeds two feet and is more commonly nearer fifteen inches. Even in the dams with straight profile the face stones are generally laid with horizontal joints, the required bevel being given to the face, in the curved profiles the face masonry is generally laid normally to the curve."

#### LABUAN COAL MINES

After a great many years of misfortune, set-backs through tapping feeders of water in the mines, owing to insufficient pumping power, labor difficulties, breakdowns of machinery etc., etc., it is extremely gratifying to observe that the praiseworthy patience of the shareholders of the Coal Company has, at last, every indication of reaping its merited reward. An extensive electrical plant has been installed and about two or three months ago the Blue Funnel steamer Ching Wo brought to Labuan some 300 tons of mining machinery. Since the beginning of the present year progress has been steady and satisfactory and, although the new machinery has not yet all been laid down, the output has been gradually increasing until it is now found necessary to export coal for sale on other markets.

The first shipment of 1,750 tons was made to Hongkong per the ss. "Fiume;" loading was accomplished in three and a half days. This is not, of course, rapid work but, nevertheless, good for a commencement and no doubt better despatch will be given later on.

No fear of failure is entertained on the score of quality provided the coal is given a fair chance. Labuan coal may be favorably compared with the best Japanese and the engineers of the local Norddeutscher Lloyd steamers, who have used it for many years, speak very highly of it and like it more and more as time goes on. Another indication of the good quality may be inferred from the fact that many Ocean steamers have made several additional calls at Labuan for bunkers after first coming for a trial. It has, further, been ascertained that one large London shipping firm have entered into a contract to take several thousand tons during the current year and this alone has some significance. The Coal Company undertake to supply steamers calling at Labuan for bunkers at very reasonable prices, there is also a regular supply of good potable water, and fresh provisions are obtainable at all times of the year. It seems perfectly safe to predict a prosperous future for the newly acquired Dependency of the Straits Settlements.—Free Press.



PLAN OF IRRIGATION SYSTEM OF THE IMUS ESTATE, CAVITE, AFFECTING AN AREA OF 23,000 ACRES

## ELECTRIC INSTALLATION IN THE TONGSHAN MINES

The new electrical plant installed by the Chinese Engineering and Mining Co. in its Tongshan mines was formally opened last month in the presence of a large number of guests of the company. The new plant is one of the most complete and modern in the far east and the management is better equipped than ever to operate its growing business

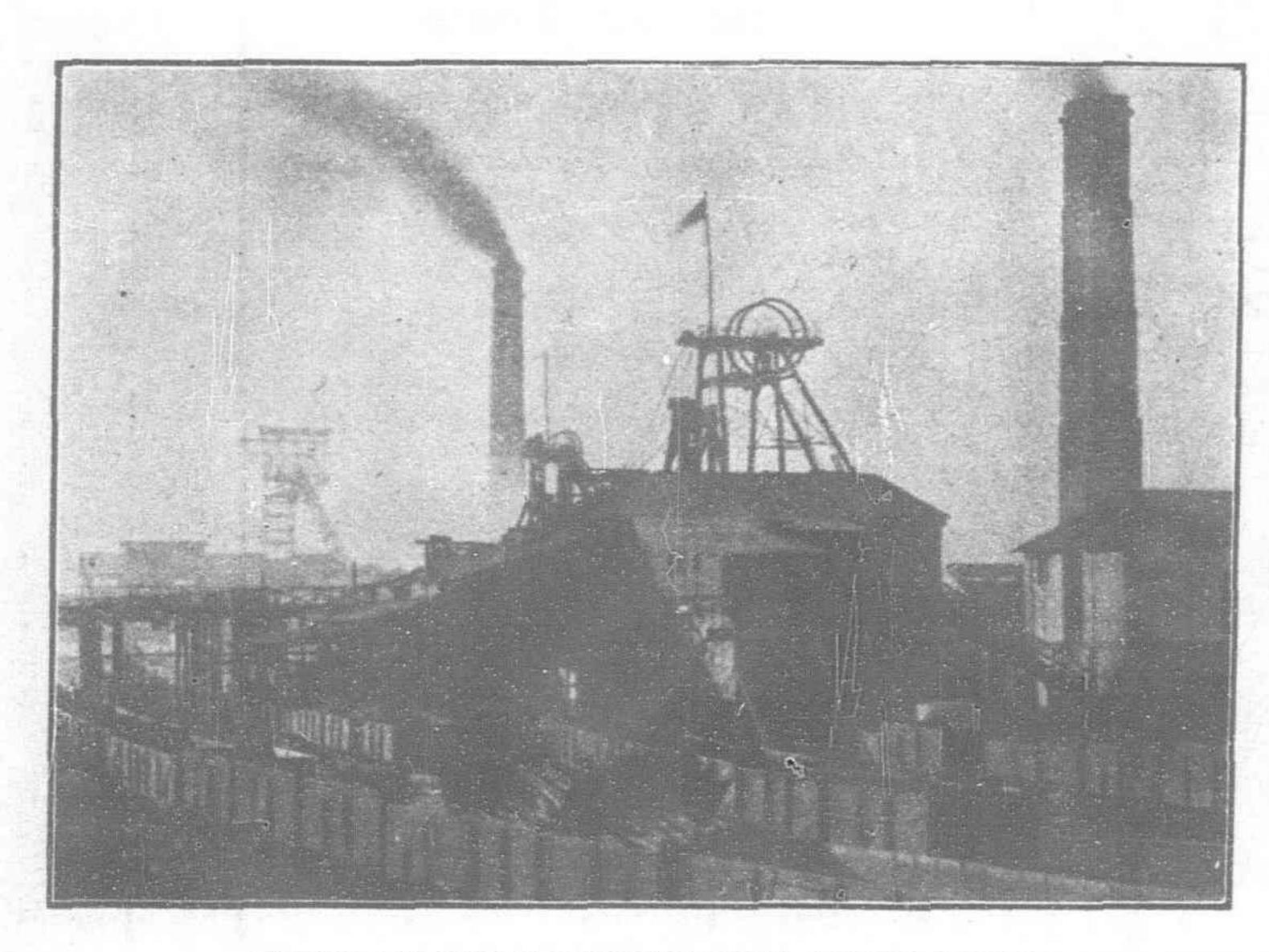
gear, are placed near the chimney, each economizer being able to heat the necessary feed water for running one set with accessories under full load to a temperature of 80° C.

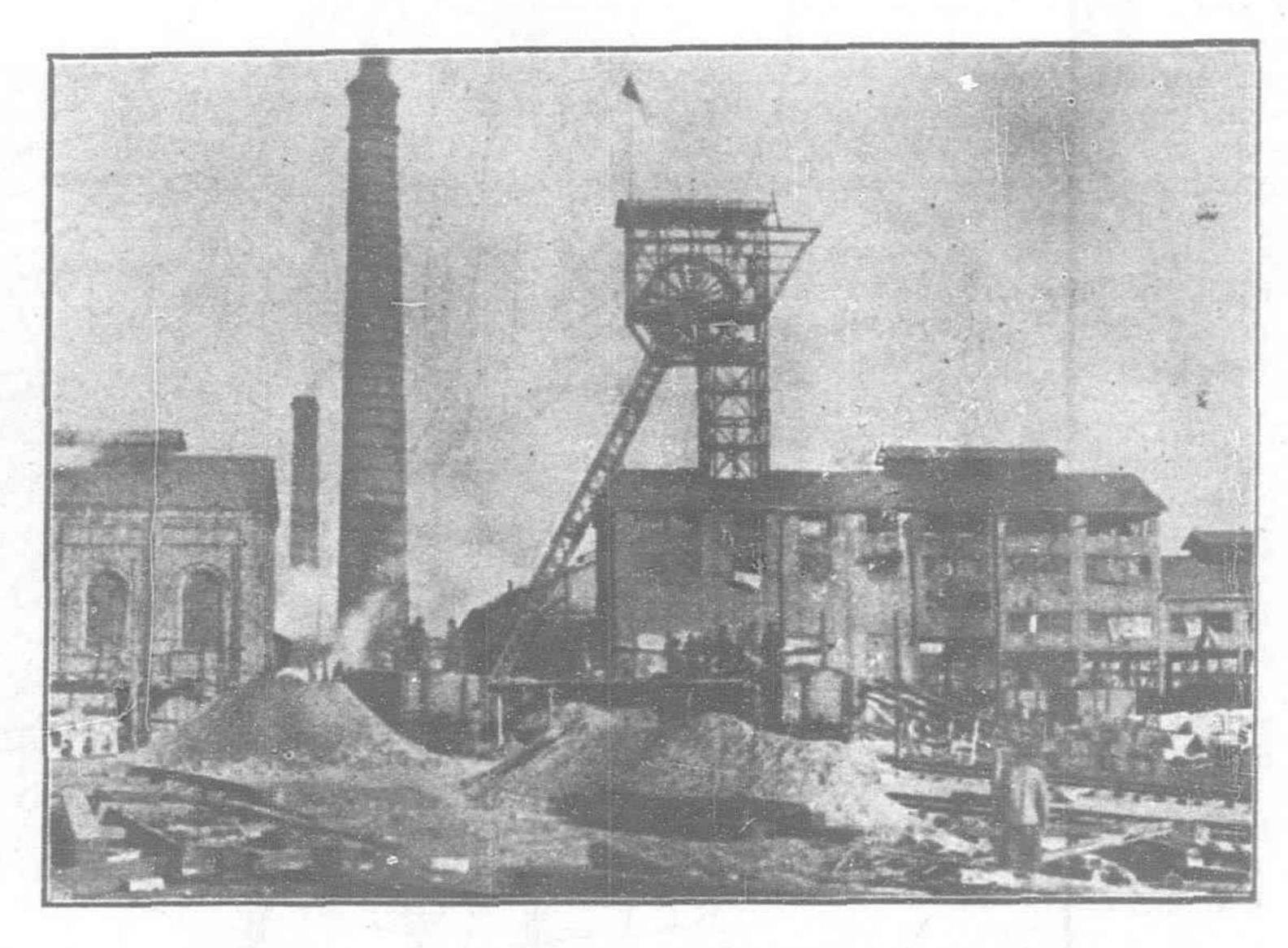
The power station measures 125.51 ft. There are three Vanden Kerchove S. S. W. type steam alternators having a capacity of 1300 K.V.A. three-phase at 2,200 volts, 107 rev., and 25

A 30 ton "Titan" travelling crane runs the whole length of the Power Station.

The live steam, exhaust and water-pipings are supplied by Messrs. Brener; a special feature is the flange arrangement.

At the South end of the Power House is the "Black" cooling tower for condensing water, complete, with its electrically driven centrifugal pump for 330,000 gallons per hour.





VIEWS OF THE TONGSHAN COAL MINES OWNED AND OPERATED BY THE CHINESE ENGINEERING AND MINING CO. (LTD.)

The installation includes boilers and their accessories, steam alternators, motor and steam exciters, transformers, switchboard, a 50-ton crane, all the necessary steam piping, a cooling tower, are and incandescent lamps for surface lighting, underground pumps with their accessories, all contracted for and erected by the Allgemeine Co. and Siemens Schuckert Works, both of Berlin.

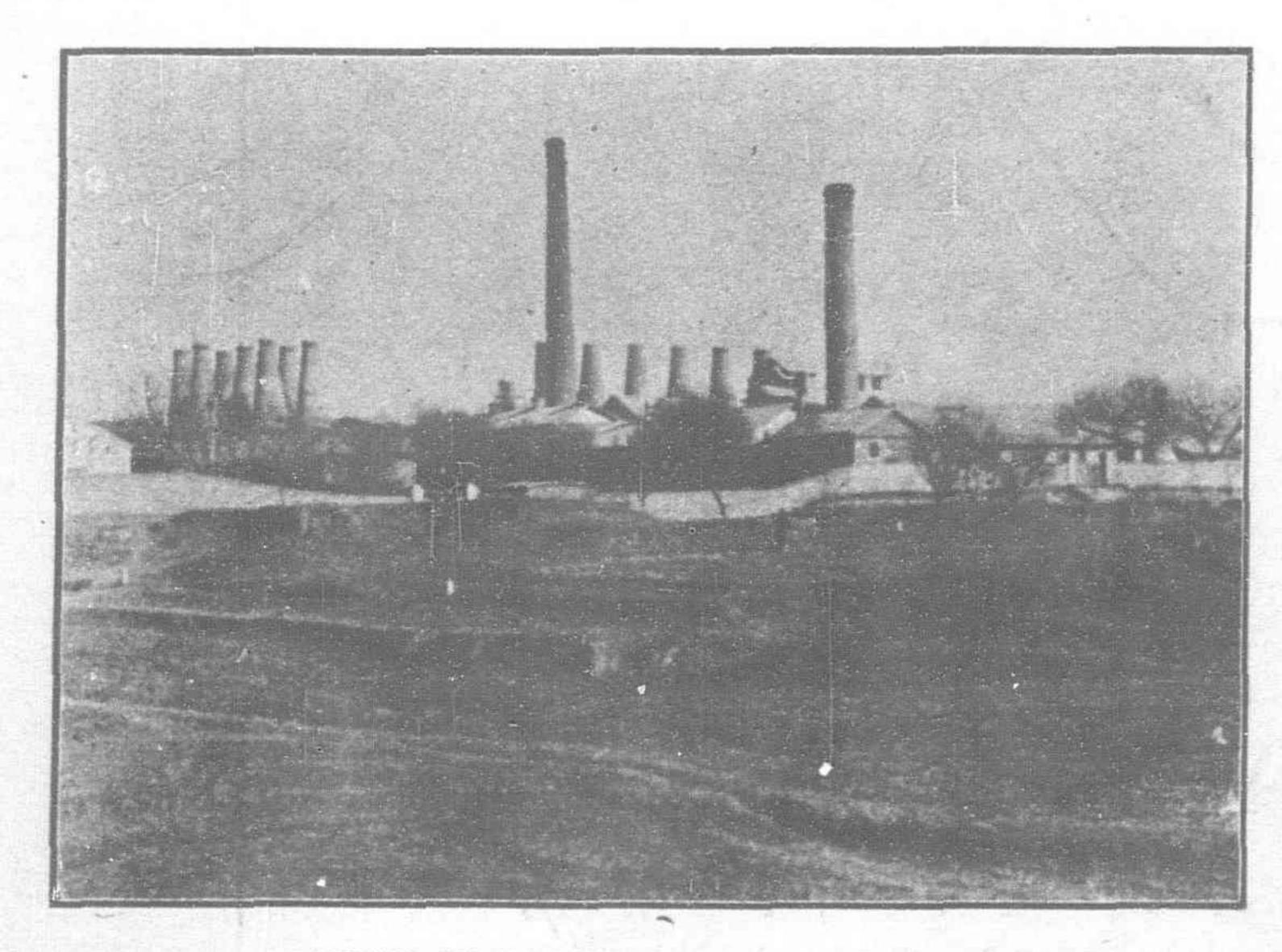
The boiler house is 190 ft. long and 71 ft. wide and contains 12 Cornwall Galloway type

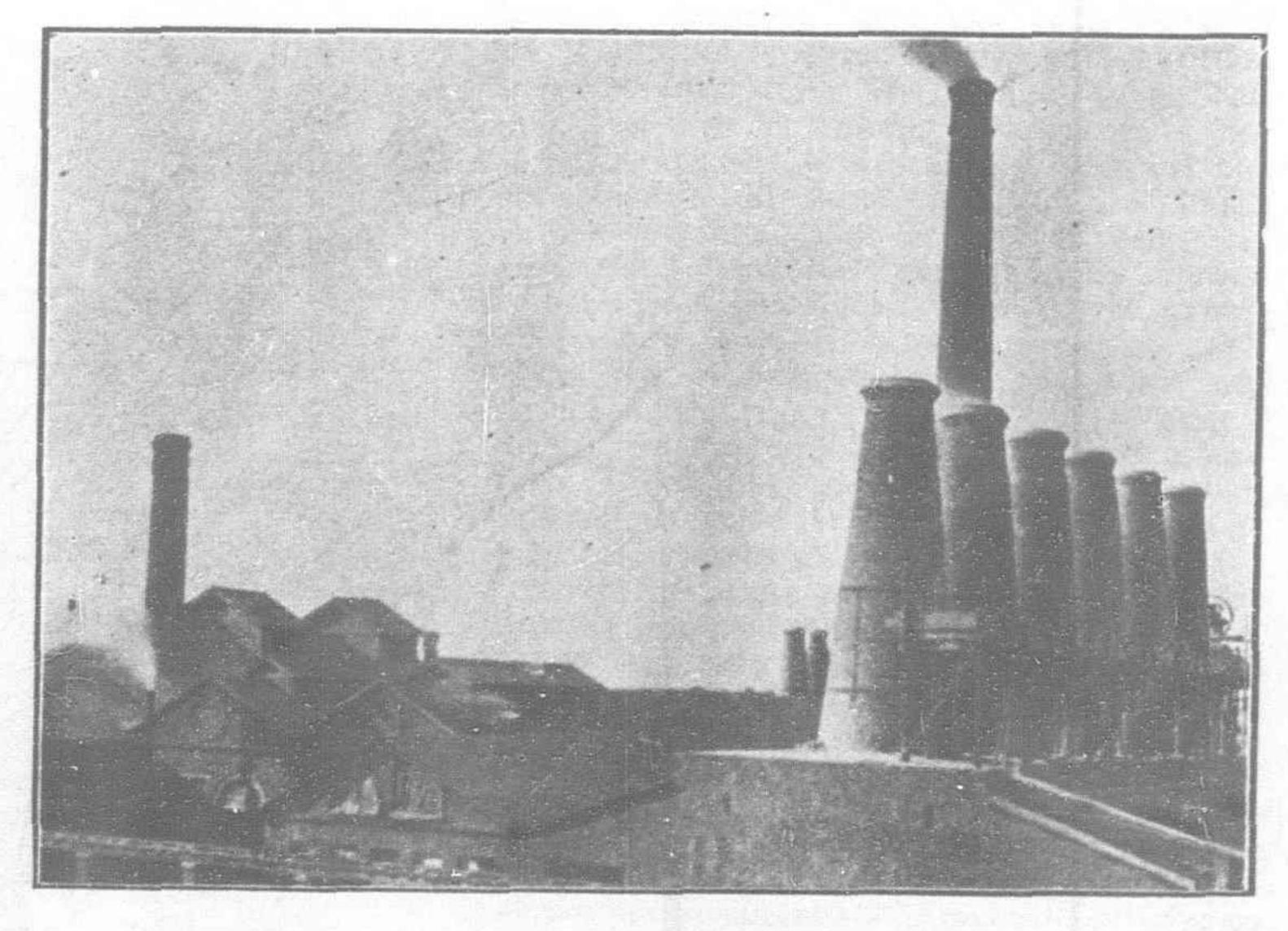
cycles per set. Each set has its own jet type condenser and air pumps, but can run exhaustion to air with reduced load. Three Victor generator sets and one steam exciter set are provided for excitation and lighting purposes. The A. E. G. Allen steam exciter set has a capacity of 40 B.H.P. while the A. E. G. type motor generators have a capacity of 85 K.W. each, at 220 volts and 745 revs.

Two 20 K.V.A oil cooled transformers are

The surface of the mine is lit by 48 arcs of 800 and 1,400 cp. and 300 glow lamps of 16 cp, and 220 volts, the necessary power being got from the motor generators.

Underground there are 5 motor driven Sulzer type centrifugal pumps having an individual capacity of 1,200 gallons per minute against a head of 700 feet. The direct coupled A.E.G. type of motor is capable of giving 470 H. P. at





VIEWS OF THE TONGSHAN CEMENT WORKS ALSO OWNED BY THE CHINESE ENGINEERING AND MINING CO (LTD.)

boilers by The Grandes Chaudronneries de l'Escaut. The boilers are 8 ft. in diameter and 36 ft. long and have a capacity of 3700 to 4400 lbs. of dry steam per hour at a pressure of 140 lbs. Each boiler has its superheater with surface of 430 sq. ft. and an injector with a capacity of 880 gallons per hour. Two Becker feed pumps of 4400 gallons per hour are placed at the north end of the building. Two Green's economizers with electrically driven scraper

provided for reducing the tension from 2,200 to 220 volts for the economizer motors, etc.

The switchboard is well worth inspection; its special feature is the manner in which the high and low tension current is separated.

The 32 panels are arranged in two levels; the top half being served from a platform, a special panel is provided for synchronising.

2,000 volts and 1485 revolutions a minute. Three pumps are placed in the fourth level at a depth of 670 feet and two in the sixth level at 1,000 feet. There is a spare pump in each level. Each pump chamber is provided with its own switchboard, lighting and starting transformers, etc.

The pumps in the sixth level deliver water to the fourth level, and those in the fourth level

deliver up to the surface. An extra electric cable and a reserve water exhaust pipe are also provided. Besides the equipment referred to sundry additional motors for fans, the operation of the sawmill, brickyard, workshops, North west shaft, etc., will shortly be installed.

It has also been announced that the Linsi colliery will also be equipped with a similar installation including nine boilers and two generating sets.

#### BANGKOK SHIPPING

The shipping cleared inwards and outwards at the port of Bangkok last year, increased in accordance with the increase in the volume

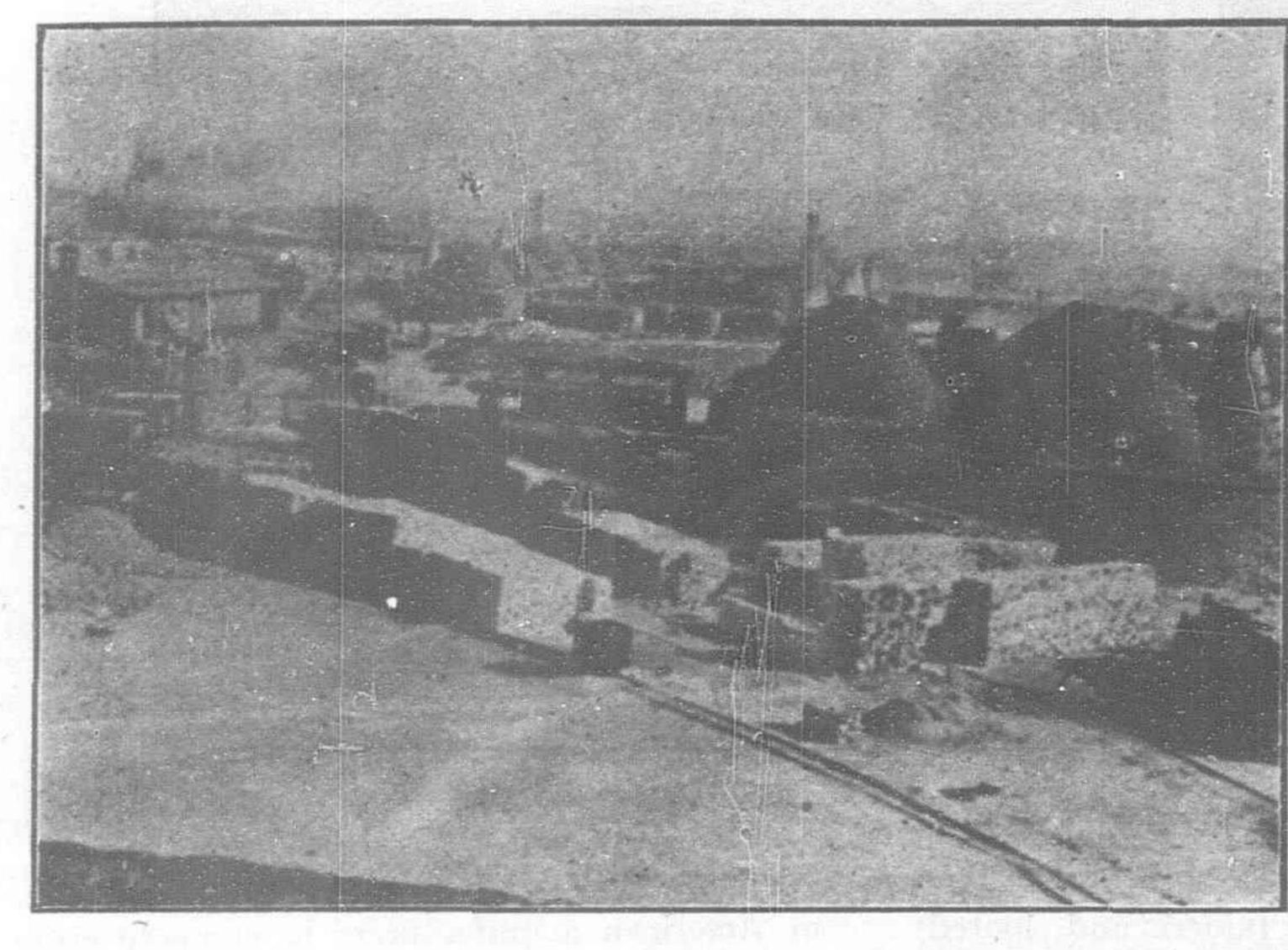
in British bottoms. The rest of the shipping is a small matter even in the aggregate. There was a falling off in the number of sailing ships last year, only eleven visiting the port, but there was an enormous increase in the number of junks, 340 arriving as compared with 59 in 1905 and 58 in 1904.—Bangkok Times.

#### BAMBOO SAP

In replying to a California inquiry as to the use of the sap of the bamboo in India, Consul-General William H. Michael, of Calcutta, supplies the following information:

"The sap of the female bamboo is used for medicinal purposes in India, and it may be had

Java. The persons furthering the promotion are: Messrs. T. C. Owen, J. L. Bent, and W. G. Tarbet (late Editor of the India Rubber Journal), and the Agents will be Messrs. Rowe White and Co. The gentlemen just named will probably be the first Directors of the Company, the capital of which is suggested to be £35,000 in £1 shares. 5,000 of these will be reserved subject to call at par, and 4,000 will be allotted along with £18,000 in cash as payment to the vendors of the estate. One noticeable feature in company development in Java appears to be from the advance statement of this flotation that land is let out in that country in return for labor, and on the estates under consideration there are 6,070 people, out of which 260 per day



FIRE BRICK FACTORY AT TONGSHAN



COKE MANUFACTURING PLANT OWNED BY THE C. E. AND M. CO. (LTD.)

of trade. Some 793 steamers of a tonnage of 731,988 were cleared inwards, as compared with 739 steamers of 670,109 tons in 1905, and 722 steamers of 649,420 tons in 1904. Roughly it may be said that the increase is divided between the German and the Norwegian flags. The number of German steamers has grown from 348 in 1904 to 361 in 1905 and 379 in 1906. Similarly Norwegian steamers, cleared inwards, numbered 114 in 1904, 165 in 1905, and 206 in 1906. On the other hand the number of steamers under the British flag has fallen from 137 in 1904 to 103 in 1905, and 98 in 1906. The German flag covered over 55 per cent of the imports, practically 60 per cent of the tonnage and 47½ per cent of the number of steamers last year. To the Norwegian flag has to be attributed close on 26 per cent of the number of steamers, over 21 per cent of the tonnage,

in the Indian bazars of Calcutta at from 41 cents to \$1.35 per pound, the latter being the specially white and calcined tabashir. "Tabasheer," or "banslochan," is sold in all Indian bazars, as it has been known from the earliest times as a medicinal agent, its use as such having, it is supposed, originated among the aboriginal tribes. It is also known in Borneo, and was an article of commerce with early Arab traders of the East. Its properties are said to be strengthening, tonic, and cooling. A great deal has been written about tabasheer or tabashir in Hindu medical works which have been reviewed by modern writers. It has been analyzed and has been shown to consist almost entirely of silica, with traces of lime and potash. With our present knowledge of medicine, such an article is not calculated to be very efficacious, but from its remarkable occurrence in the hollows

require to give their services free in return for use of the land.—Ceylon Observer.

## TRADE OPPORTUNITIES.

Sugar-inill Machinery.—Consul Arnold, of Tamsui, Formosa, sends particulars of the new sugar-crushing enterprises on that island, with a list of the new and old companies. Some of the newly organized concerns intend sending their representatives abroad to purchase machinery and equipments. Further information may be obtained from the bureau of manufactures. American business men should bear in mind, adds Mr. Arnold, that there are other materials besides machinery to be purchased by these companies, such as corrugated iron for roofing and building purposes, tools and implements for machine shops, and



PORT OF CHINGWANGTAO, THE PROPERTY OF THE CHINESE ENGINEERING AND MINING CO.

and practically 29 per cent of the imports. The British vessels numbered over 12 per cent of the total, accounted for 15 per cent of the tonnage and carried 9½ per cent of the imports. Of the exports 57 per cent was carried in German, 26 per cent in Norwegian, and over 12½ per cent

of bamboos the eastern mind has long associated it with miraculous powers.

## **NEW JAVA COMPANY**

The Simo Rubber Co. is the latest new venture, and is a scheme to acquire and develop land in

everything which accompanies such plants, which will be operated by steam power. The production of sugar in Formosa in 1906 amounted to 178,500,000 pounds, an increase of 50 per cent over 1905, and the production is steadily increasing.

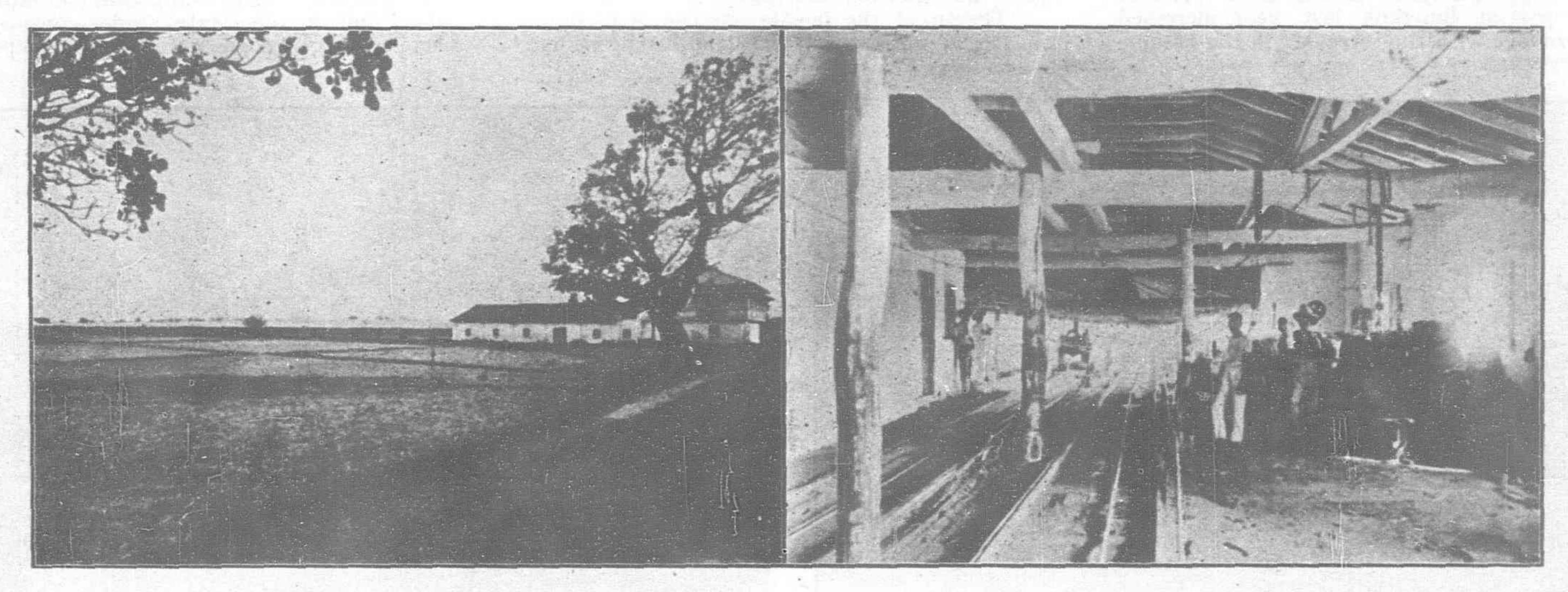
## THE SANTA MESA ROPE WORKS

The Santa Mesa Rope Works, situated on the banks of the Pasig river, are among the most important establishments in the Philippines. They are owned and operated by Emil H. Johnson and John T. Pickett, two enterprising American businessmen, and at the present time over 70,000 pounds of the finest rope manufactured anywhere in the world represents the monthly product. Messrs. H. R

Not only was the output large but the product was graded and recognized as the best not only in the Orient but in the world. Señor Valenzuela won many medals at exhibitions held in Europe over the leading rope manufacturers.

This man under whose management the factory prospered and was recognized as the leading rope manufacturing plant in the world met a tragic death during the outbreak of

In connection with the works there are approximately 120 persons employed all of whom are trained workmen. The advantage of being in the market at all times for the best quality of Manila hemp where it is cultivated has had much to do with the excellent quality of rope turned out. Only the choicest of hemp fiber grown in the islands is used so that it is practically impossible for any European



VIEWS OF THE SANTA MESA ROPE WORKS

Cooper & Co., 3 Callejon de San Gabriel, Manila, are the sole agents for the works.

This factory was established by an English firm over fifty years ago, and notwithstanding the fact that its site was the objective of the insurgents and Santamesa the battlefield, the works were never completely destroyed although the doors still show the marks of rifle butts and bayonets where they were forced by either insurgent or Spanish soldiers in the conflicts that raged in that vicinity.

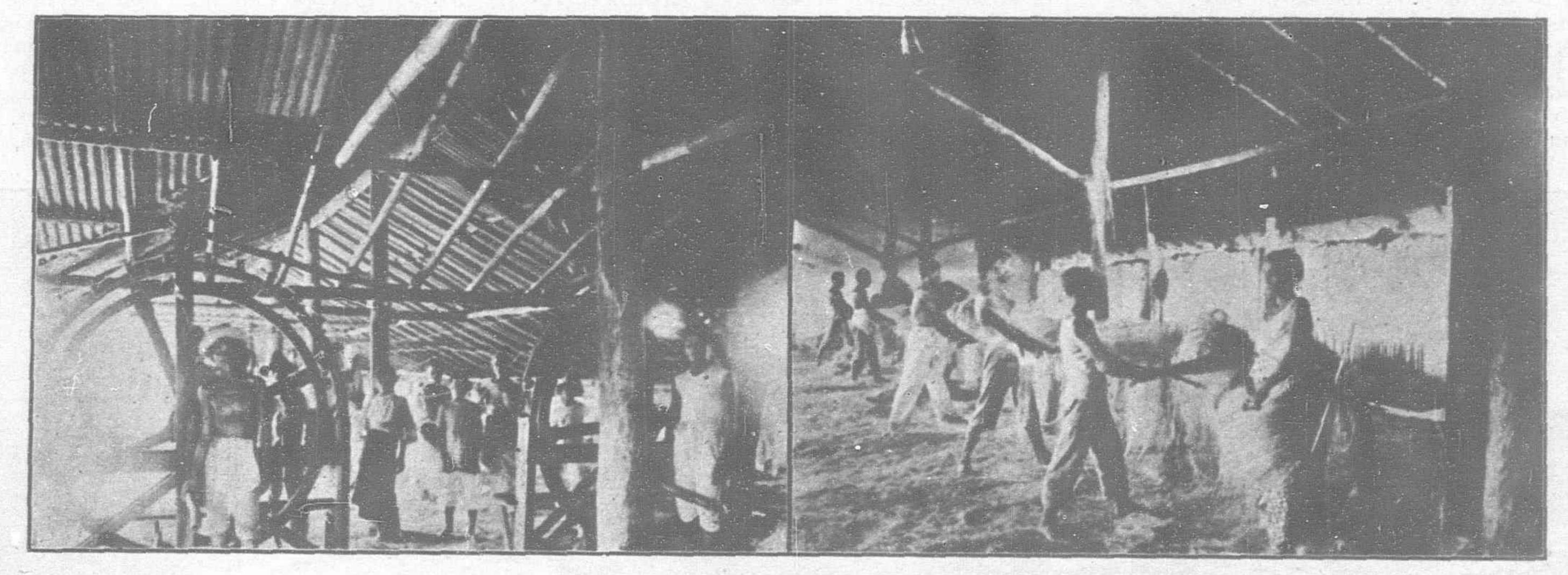
Until recently the works were known as "Cordelería de Valenzuela," the title remaining until taken over by the American proprietors.

1896. The factory was raided and looted by Spanish soldiers, and Señor Sanchez, who was living in a house, met his death from Spanish bullets either by accident or design. The business was, however, continued under the direction of Honorio and Juan Valenzuela, the unfortunate man's sons until 1902 when Honorio died leaving Juan in control. In 1905 the entire plant was destroyed by a terrible typhoon which swept the islands and all the buildings were left a mass of twisted ruins.

In 1906 the present proprietors purchased what was left of the once prosperous works and after extensive outlay they were once more in operation. The new management in-

or American manufacturers to compete either in price or quality of the rope put on the market.

As heretofore stated in this article the site of this factory is one of the most historical places in or about Manila. No history of the insurrections against the Spaniards or the Americans would be complete without reference to the important strategic position of the plant on the bank of the Pasig River as Santa Mesa heights slope down to the river. In his book "The Katipunan," Millar, the author, devotes some space to the part the old rope factory played in the struggles between the insurgents and the sovereign nations for the



INTERIOR VIEWS OF THE PLANT OF THE SANTA MESA ROPE WORKS

The plant seems to have been kept continually in operation except when the buildings were needed for headquarters for the Spanish soldiers. It changed ownership several times during its early history, and on one occasion it was partly destroyed by fire when it was owned by Messrs. Tuason and Legarda. In 1895 it was rebuilt by Señor Sanchez Valenzuela and under his management the factory turned out more product than in its previous history.

stalled a motor and the factory has since been operated by electric power.

Mr. Johnson is in direct charge of the factory. He is an expert ropemaker and fiber expert. Under his management the factory has sustained its reputation for turning out an unequalled product. So encouraged are the present proprietors that they are considering extensive additions to the already modern plant for the purpose of doubling the present output.

mastery of Manila. The author of "Manila Romans" also refers to the refuge of the hunted and the rendezvous of the strong.

A comparison of the tests made of the product of the Santa Mesa Rope Works with tests made of the product of similar factories in the United States and Europe favors the product of the Santa Mesa plant. Major Ahern, director of the bureau of Forestry, makes the following statement relative to tests made which de-

monstrates the superiority of the Santa Mesa product:

## DEPARTMENT OF THE INTERIOR. BUREAU OF FORESTRY, Feb. 7, 1907.

SIR:-

I have the honor to submit the following statement of results of tests on two sizes of ropes tested at the Timber Testing Laboratory for the Santa Mesa Rope Works, Manila, P. I.

Rope, 2" circumference.

Specimen No.	Breaking loa Pounds.
1	1948
2	· 2267
3	1929
Average	2048

Rope, 1" circumference.

Specimen

No.

Pounds.

730

876

3 671

(Sigd.) ROLLAND GARDNER,
Mgr. Timber Testing Laboratory.

759

The above results compare favorably with a summary of results of rope tests made by this Bureau, as published in the last annual report. An extract from the annual report is as follows:

	Ropemadeat	1 in.circum. Strength Lbs.	
B	ilibid	709	
	do	431	
U	nited States	676	3268
T	ubbs Cordage Co	703	
	ymouth Cordage Co		
	nchausti & Co		2058
	do		1514

GEORGE P. AHERN,

Director of Forestry.

## PHILIPPINE HARDWOOD USED IN SUB-URBAN CAR CONSTRUCTION

That Philippine products will eventually be largely used in the trades in this country is the firm belief of C. A. Ricks, secretary-treasurer of the Kuhlman Car Company of Collinwood, O. Mr. Ricks believes the Philippines have a great future and is inclined to question the intimation that the United States has a "white elephant" on its hands.

"At the present time several Cleveland firms are directly interested in the islands," said Mr. Ricks. "The Nicola-Stone & Meyers Company, a large lumber house of Cleveland, operates a 60,000 acre tract of timber land in the Philippines and is selling Philippine woods here in

Cleveland.

"The Kuhlman Car Company is using Philippine wood called 'lauan' in the interior finish of two big handsome suburban cars now building for the Rochester-Syracuse and Eastern Railway. These will be the first electric cars in the United States finished in Philippine woods, and there is no question at all in a very few months 'lauan' will replace Mexican mahogany in the interior finish of suburban cars.

"I believe that more money will be taken out of the Philippine Islands in lumber alone in the next ten to fifteen years, than was taken out of Alaska in gold in the first ten to fifteen years after the United States purchased Alaska.

"The future wealth of the Philippines will lie mainly in the vast forests of valuable timber which they contain. This view is entertained by the administration, and the most farseeing measures have been adopted to conserve the extensive areas of public woodland.

"The archipelago has never been completely surveyed, but the official estimates, from which the following figures are deduced, probably approximate to exactness. The total land area of the islands is upward of 73,000,000 acres. Of this more than 66,000,000 are the property of the state and about 45,000,000

acres of this public domain are wooded, leaving 21,000,000 acres of land mostly capable of cultivation.

"But the prince of cabinet woods is narra, the mahogany of the Philippines. The tree grows to a great height—120 feet and over—and yields logs by the present process sixty feet in length and seven or more in diameter. The trunk at the roots will sometimes furnish a table top ten to twelve feet across. When cut the heart of the tree bleeds a bright red. The wood is deep red—there is a less prized white variety—and polishes to a brilliant vermillion color."

## INDUSTRIAL PROMOTION, JAPAN

Vice-Concul-General E. G. Babbitt, of Yokohama, reports to Washington concerning Japan's industrial investments since the war with Russia and other movements in that direction. He calls attention to the fact that it is reported that only a fourth of the sums subscribed to establish new companies is ever paid in. He writes:—

The amount of capital subscribed for new companies during one month of 1906, was about \$18,764,900; to enlarge companies already existing, \$6,682,500. This, with the amounts previously subscribed, made the aggregate, since the conclusion of the Japanese-Russian war, about \$416,502,040. It is the prevailing custom among Japanese companies to start business with only one-quarter of the shares paid up, and this, the Japan Herald says, is held responsible for the alleged insecurity of business interests and for inviting speculative investments. As things are now these quarter shares change hands so rapidly that it is often a difficult matter, at the first general meetings of shareholders, to identify the real holders. Such an arrangement is a check to the real growth of undertakings, and Japanese business enterprises will not attain the solidity of foreign corporations until, like them, the whole or at least three-quarters of the shares are required to be paid up.

There seems to be some reason for apprehending that the business of company promoting in Japan is assuming serious dimensions. According to investigations conducted by the Nippon Ginko (Bank of Japan) capitalization of new enterprises started from July, 1905, to November 30, 1906, including increase of capital, involves 988,729,080 yen (yen=49 cents). The following statistics indicated the nature of

such enterprises:-

	New enter- prises.	Increase of capital.
	Yen.	Yen.
Banks	31,970,000	30,747,250
Spinning factories	20,353,000	28,469,080
Electric business	93,310,000	17,080,000
Mining business	44,270,000	3,550,000
Marine products	16,725,000	1,000,000
Railways	294,330,000	72,519,000
Manufacturing in-		
dustries	149,544,800	64,167,000
Shipping business		8,400,000
Insurance business	30,700,000	13,600,000
Commerce, etc	44,480,000	18,513,150
Total	730,682,800	258,045,480

Another feature in the development of such enterprises in this country is the growth of the marine-product business. The fishery companies incorporated during the eleven months ending November 30, numbered 17, involving a capital of 14,975,000 yen, of which only 1,825,000 yen has actually been paid up.

## CHINESE RAILWAY SCHEMES

With the single exception of education, says the North-China Daily News, represented by the feverish establishment of schools here, there and everywhere without regard to the requirements of the districts or to the possibilities of securing the requisite teaching staff, there is nothing into which the Chinese are throwing themselves with such enthusiasm at the present juncture as into the construction of railways. From all sides come reports of lines being advocated, planned and in some cases begun.

In distant Yunnan it is proposed to build the Têngyueh railway; in Manchuria there is said to be another scheme on foot to build a line from Hailungcheng to Kaiyuan, which if ever constructed would be a rival to the Mukden-Harbin Railway and to further railway enterprise on the part of the Japanese in that country. From Chaochou to Swatow a railway has recently been completed, which was built entirely with Chinese capital. The construction of this line, 30 miles in length, was placed in the hands of Japanese contractors; it has cost upwards of \$3,000,000 and has taken 21 years to build. The Peking-Kalgan railway line is also in Chinese hands and is proceeding at a proportionate rate. A statement appeared in a contemporary a few days ago to the effect that Russia was dissatisfied with the progress of this line and was endeavoring to hasten its construction. In numerous other districts railway work of a kind is being carried on, while ten days ago the ceremony of turning the first sod of the railway from Shanghai to Kasking was performed outside the South Gate of the native city. This line is said to be in the hands of the Kiangsu and Checkiang Railway Companies, the shareholders of which comprise of gentry and merchants of these two provinces. The scheme is for the Kiangsu Province Railway Company to build the line from Shanghai to Fêngchingchên on the border, while the Chekiang Province Railway Company will carry on the construction from that point to Mashing and thence, it is stated, to Hangchow. This formation of provincial railway companies meets with the support of the Peking authorities, and according to a telegram which we publish to-day the Waiwupu is asking the Governments of the provinces concerned to undertake the construction of a railway from Tientsin to Chinkiang.

It would be well if all these symptoms of railway fever could be taken seriously and were likely to lead to definite results. As things are, however, China does not appear to be going to profit by more than one out of every ten or twenty schemes planned and, perhaps, begun. Officials are availing themselves of the spirit of the times to appeal to their patriotic countrymen to subscribe funds, in order to keep out foreign capital. In the case of the Tientsin-Chinkiang line, indeed, the Waiwupu's request is said to be promoted solely by the desire to thwart foreign claims on this proposed railway. Agents are even being sent to Chinese abroad, notably at Singapore, to collect funds for railway enterprise, and there is no doubt that success is attending the efforts to raise Chinese capital

for railway construction.

## NEW PUBLICATIONS

South America is the name of a new illustrated monthly, printed in Spanish and English and devoted to matters appertaining to South and Central America, Mexico and the West Indies, covering commerce, industries, mining, agriculture, finances, science, exploration, travel, fiction, art, literature, music, drama and society It is published by the Latin-American Company, Metropolitan Building, New York City. Mr. J. W. Davis is editor-in-chief, and Mr. Walter J. Ballard is named on the title page as associate editor. A special article entitled "Our Latin-American Trade," written by Mr. Ballard, appears in the preliminary issue.

Crucibles, Their Care and Use, by John A. Walker, is a valuable volume issued by the John Dixon Crucible Co., Jersey city, N.J., U. S. A. The purpose of the book is to instruct users of crucibles in their proper use and to instruct against the dangers of ignorance as to their operation.

The Filipino Teacher's Manual, by H. C. Theobald, A.B., principal of the provincial high school of Batangas, P. I., and issued from the presses of the World Book Co., of New York and Manila, has reached our deck. The volume is intended to assist the native teachers in the Philippines and to encourage them in their work. The author who is familiar with conditions in the Philippines gives the native teachers the benefit of his experiences as a teacher, and from a cursory review the volume appears to have unusual merit and we believe will be appreciated

## TRADE OF KWANTUNG PENINSULA

In reviewing the trade situation and outlook for Dalny and surrounding country, Vice-Consul P. S. Heintzleman says it is necessary to bear in mind that the region, viewed in the light of foreign commercial interests, is prac-

tically new. He writes:

Indications are that Dalny will develop into a prosperous commercial city. With its commodious harbor, superb shipping facilities, and railway extending through the heart of Manchuria into its northern districts, it apparently possesses all or nearly all of the most essential requisites for becoming a commercial center of no mean importance. This is one of the finest deep-water harbors of the Pacific, as it is free from ice during all seasons of the year, and ships drawing 30 feet can enter at low tide without any difficulty, and, even without the aid of a pilot, steam alongside the piers and docks, well protected by a breakwater, where their cargoes can be loaded directly into cars that run into all the large trading centers of Manchuria. The surface of the bay comprises many square miles, and the deep-water area is sufficient to handle the shipping of all North China. The rise and fall of tide does not exceed 11 feet. The harbor possesses 5 large piers, varying in width from 60 feet to several hundred feet, and in length from a quarter of a mile to half a mile, two of them being supplied with lines of railway tracks, numerous warehouses and storage sheds, and electric lights. There is abundance of room in the harbor and sufficient depth of water to provide for any number of piers desired. A large breakwater is constructed across the front of the piers, so that ships can lie at the piers and load and unload regardless of the weather. Docks for foreign vessels, steam and sail, extend between these piers and along the shore for 2 miles. There are two-first class dry docks; one is intended for ordinary ocean steamers, and the other can accommodate the largest vessels of commerce or war.

#### AN ECONOMICAL SHIPPING PORT.

The ease of entrance into the harbor at all seasons of the year, the small amount of labor required to transfer goods from the ocean vessels to the cars, the low-priced cooly service, and the policy of low freight charges already adopted by the new South Manchurian Railway Company, combine to make this one of the most economical shipping ports of the Orient, and a wise policy of railway administration should develop a trade of such large proportions as would create here one of the greatest commercial points on the Pacific. The accomplishment of these results will take considerable time, though not necessarily involving a large outlay of money on the part of the Japanese Government. Radical changes, incurring great expense, will have to be effected on the South Manchuria Railway, which is really the key to the success of this port. The railway after being conveniently connected with the Russian portion of the line in north Manchuria, thereby opening a through traffic, will have a most powerful bearing upon the commercial development of Dalny and, indeed, upon the successful exploitation of Japan's commercial enterprises throughout all Manchuria.

#### DALNY'S POPULATION.

The population of Dalny, according to a police census taken in December, 1906, is given as 22,-483. The police returns for Dalny show that there are 1,762 Japanese shops, stores, and firms located here, of which about 200 may be classed as firms, and of these probably 50 are large, reliable, and of some prominence. The Chinese shops, stores, and firms are placed at 908, though the influential Chinese firms do not exceed one dozen.

Dalny contains a large area of well-constructed streets and many modern buildings, substantially built of brick. The town is well supplied with parks and possesses numerous hotels and several schools, churches, and hospitals; there is also a daily newspaper in the Japanese language. Dalny has an electric-light plant, and all the public buildings and many private residences

and places of business are electrically lighted. The service is good and the charges moderate. The same may be said of the water system. The telegraph and mail facilities are excellent, and the list of subscribers to the telephone has doubled during the past year. The fire department is well organized and equipped. In a large commodious building, conveniently located in the center of the commercial section, is the market, where vegetables, fruits, fresh fish, and meats are on sale daily. The building is kept in excellent sanitary condition. The town is properly policed, while the body of gendarmes located here permanently render effective service. Besides the police court there is the Dalny district court, holding its sessions at regularly stated intervals.

BANKS AND FOREIGN INVESTMENTS.

A branch office of the Yokohama Specie Bank is established here and the Hongkong and Shanghai Bank has an agency. The former is doing a flourishing business. The total amount of drafts and bills of exchange drawn on Japan and deposited with the bank for the year 1906 aggregated almost \$3,500,000, and those on China for the same period totaled \$1,750,000; while the drafs locally granted and bills of exchange negotiated with Japan amounted to \$1,100,000, and with China \$1,500,000 for the year.

Foreign merchants are proceeding cautiously in the way of opening branches here. There are three foreign firms, all of them branches of British concerns in Japan and China, domiciled in Dalny, and representatives of other large foreign commercial houses in the East come here, from time to time, to view the situation and study the conditions. It is my belief another six months will see other reputable and long-established foreign firms of the Orient with

branch offices in this city.

The apparent willingness on the part of large foreign firms to invest capital in Dalny by renting, leasing, or purchasing property for the establishment of branch houses, and especially on the part of Chinese merchants, who are noted for the readiness with which they see and grasp a business opportunity, may be considered the best indication of the future success of Dalny, as a commercial center. The belief that foreigners will receive equal rights with the Japanese is becoming more general, as also the belief that Japanese methods will finally be so modified as to encourage and develop outside trade.

At present nearly all the merchandise imported into this city comes direct from Japan; Chefoo and Antung, alone of the near-by cities, being credited with a small share of the trade. Almost all the goods thus far imported were carried in Japanese bottoms; in fact, during the four months ending December 31, 1906, in which the port has been open to foreign trade, only six steamers bearing flags other than Japanese have entered Dalny, and these were for the most part from Chefoo. Since the northern port of Newchwang has been inaccessible for steamers owing to the frozen waterway, a small British steamer, the Newchwang, of 895 gross tons, has been placed on the Chefoo-Dalny, line, and has been plying regularly between these towns. The passengers are Chinese, and the cargo carried is of such a limited quantity that the run scarcely pays the operating expenses.

One of the Boston Towboat Company's steamers, the Hyades, of 3,753 gross tons, called here in January laden with 125,000 bags of American flour, consigned to Chinese merchants. This is the first merchant steamer flying the American flag to call at this port since its oc-

cupation by the Japanese.

REVENUES OF THE PORT-SPECIAL RAILWAY RATES.

Since the opening of Dalny to international trade on September 1, 1906, it is a free port, and all merchandise of whatever origin or description is now entered without payment of duty. There is a wharfage fee for all steamers lying alongside the piers of 2½ cents per gross ton, a passage duty of 5 cents a ton on all cargo discharged or to be loaded at the piers, a ground

rent of one-half cent per 36 square feet for every 24 hours the merchandise discharged or to be loaded lies on any of the wharves, as well as an additional shed-rent charge of 1 cent per 36 square feet for every day any of the government sheds are used for storage purposes. A steamer, however, may anchor out in the harbor, away from the piers, and pay no government charges whatever. In this case only may Dalny be called a free port in the true sense of the word.

The Osaka Shosen Kaisha maintains an excellent steamship service between Osaka and Dalny, touching at the intermediate points of Kobé and Moji. This company receives a liberal subsidy from the Japanese Government. The Nippon Yusen Kaisha also has three steamers

on the run to Dalny.

That special freight rates over the Tashichiao-Dalny section of the railway are being granted all merchants of whatever nationality on all merchandise entering or leaving Manchuria via Dalny there can not be the least doubt. Tashichiao is the point at which the line from the north divides, one branch running thence to Newchwang, a distance of 13 miles, while the other extends to Dalny, a distance of 150 miles. The military authorities in charge of the railway decided to make the transport rate uniform for both distances so that goods coming south can reach Dalny as cheaply as at Newchwang. In support of their action the railway authorities claim that unless some special device be resorted to, the Tashichiao-Dalny section of the road will not pay. There is no discrimination in this, to the best of my knowledge and belief, since goods of all nationalities enjoy the same privilege over the Liaotung section of the line.

I was recently handed an official statement by the civil administrator here purpoting to be a declaration by the Tokyo government and

couched in the following language:

The question of the adjustment of railway fares to Tairen (Dalny) and to Newchwang will be for the consideration of the South Manchuria Railway Company; but as it is intended to make Tairen the central point for distributing and receiving merchandise to or from Manchuria, railway rates must be adapted to that programme, and the condition of Newchwang will probably be left to the laws of natural development.

On the other hand, searching investigations conducted by this office, in response to numerous complaints made by foreign merchants that Japanese traders are enjoying special treatment in the matter of freights on the South Manchuria Railway, reveal that these allegations are not founded on fact. All goods without distinction of their source are allowed to enter duty-free at Dalny, but there can be no question that under existing circumstances Japanese goods constitute the great bulk of the arrivals, and there are good reasons for believing that they will constantly assume large proportions.

The statistics in detail of foreign trade for December have not yet been compiled, but it is officially stated that there is recorded by far the largest monthly increase in the volume of trade in the history of the port. This is explained for the most part by the fact that the closing of Newchwang by ice has diverted to Dalny a number of ships which would otherwise have discharged their cargoes at Newchwang.

The chief articles of export are beans, bean cake, barley, millet, salt, furs, mules, fruits, vegetables, wild raw silk, and wild cocoons; while the leading articles of import are cotton yarn, cotton goods, shirtings, flour, kerosene oil, tobacco, lumber, rice, sugar, paper, cement,

fowls, and eggs.

A careful analysis of an official statement of statistics, describing in detail Manchuria's trade with Japan during 1906, reveals the indisputable fact that, of a total import trade of \$10,368,988, Dalny is credited with having received merchandise valued at \$8,883,635; or in other words, 85 per cent of Japan's import into [Manchuria during 1906, and the particularly noteworthy feature of this trade is that it was entered duty free. The total value of Japanese goods imported into Newchwang

in 1906 is given at the surprisingly low figure of \$1,352,813, or about one-seventh of the amount accredited to this port. Japanese goods entering Manchuria through Antung last year are valued at \$736,046, or about 8 per cent of the amount passing through Dalny. The total value of Manchuria's exports to Japan for 1906 is placed at \$3,985,340. This amount is divided among the three ports of shipment as follows: Newchwang, \$3,097,720; Dalny, \$473,734; and Antung, \$413,886.

#### AMERICAN FLOUR IN MANCHURIA.

The United States is supplying practically all the flour used in Manchuria. Large cargoes are discharged daily by the fifteen or more steamers plying regularly between Japanese ports and Dalny, and loaded at once into freight cars to be transported into the interior. Whole trains, consisting of dozens of freight cars, laden only with flour from the Pacific slope of the United States can be observed here at any time. Recently in one day 133,000 bags of flour, destined to Yingkow, were landed in Dalny, as the waterway at the former port was frozen over. During the first ten days in December last 496,640 bags of flour were transported into northern Manchuria by train, nearly 1,500 cars being used for this purpose. Thus, when Newchwang is closed by ice, a greatly increased amount of flour is imported into Dalny, to be transshipped into the interior. In my opinion no fear need be entertained at present by the American flour interests that their hold on this market is being threatened by Japanese or Russian competition.

COTTON GOODS, OIL, TOBACCO, AND BEANS. Japan is apparently making efforts to capture the cotton-goods trade. The Government is lending financial assistance to the development of this industry. The principal consumer of Japanese cottons is China; and Manchuria, which is now being so extensively exploited by Japan, will become its great cotton-trade center in China in the near future. There is but one firm in Dalny importing cottons, the Mitsui Bussan Kaisha, the largest, richest, and most influential commercial concern of Japan. This company is putting forth strenuous efforts to control the cotton-goods trade of Manchuria, and is importing large quantities from Bombay, via Moji, and from Japan direct. Its large importations into Dalny during 1906 are shown by the following figures: Cotton goods, 22,642 bales, valued at \$1,252,279; cotton varn, 26,079 bales, valued at \$1,458,332; total, \$2,710,611. It may be that in a short time the Chinese will undertake the control of this business.

Nearly all the oil imported now is American, a small shipment of the Sumatra product having made its first appearance in October, some of which is still lying in a godown here, there being no market for it in this region. The demand for the American illuminant in Manchuria is on a steady increase, as may be noted in the values of the monthly importations, from \$8,000 in September to \$28,340 in November, 1906.

Japan is encountering some difficulty in selling her cigarettes here; the British-American Tobacco Company, actively competing, has succeeded in three months in forcing down the price, and advertising extensively throughout all Manchuria by means of large, attractive posters. Their cigarettes, for which there is quite a demand, can be purchased in any of the stores and bazaars here. The local tobacco monopoly office has informed me that the value of its importations for the months of September, October, and November, 1906, was \$68,373.

The major portion of the bean export business of Manchuria is at present conducted through Newchwang, but with the advent of the South Manchuria Railway Dalny is bidding to become the great bean market of the East. In order to divert this trade from Newchwang it will be necessary to meet the cheap river transportation of the Liao by low freight rates on the railway, and I am informed that since the inauguration of the system of granting special rates for the bean freight from Liaoyang and places farther north the railway to Dalny carried about \$332,000 worth during September, October, and November, 1906. A large bean-cake mill will be erected here in the early spring by the Mitsui Bussan Kaisha

BUILDING MATERIALS.

The Japanese are following out the Russian or European styles in fitting or furnishing their houses in the big cities of Manchuria. Though the greater part of the lumber now used in Manchuria comes from the Yalu, it is generally recognized by those well acquainted with the qualities of timber that the Yalu product is greatly inferior to the American and can not compete successfully with it. Great quantities of logs from the Yalu are brought to Dalny by steamer and here sawed by hand into boards and planks. This method of preparing the timber for market also places it at a disadvantage with the American machinesawed product. The total value of lumber imported into Dalny during the three months of September, October, and November was \$129,920. A cargo of Oregon pine consigned to Dalny could be landed in October owing to lack of space on the piers, so that the steamer was obliged to proceed to Newchwang to discharge.

From the published authorized statements of the total receipts of the South Manchuria Railway for the past year it appears that New-chwang easily heads the list of stations in respect of earnings. Next in order come Mukden, Hsinmintun, Menkiatun, and Dalny. The total collections of transportation charges, both freight and passenger, by the railway at the Dalny station during 1906 amounted to \$369,320, while the total receipts of the Newchwang station aggregated \$634,933.

## THE PEKIN SYNDICATE, LTD.

The directors of the Pekin Syndicate, Ltd. have issued a circular in which they state that in consequence of inquiries that have been addressed to the secretary, and having regard to unauthorized statements in the press touching the position of the syndicate, they desire to announce that the syndicate holds £774,000 in Chinese Government gold bonds and £180,000 in cash and various investments; the financial position is, therefore, a very strong one. With regard to the Ja-mei-sen Collieries, Honan, the extra pumps mentioned in their circular of April 23d have arrived in Honan, and are now being put in position. The latest cable from Mr. A. Reid, the chief mining engineer, states that he has No. 1 pit clear down to coal. A No. 3 pit has been started, and is now at a depth of 176'. A bore-hole has been put down at a point 2,800' south of No. 2 pit, and is now at a depth of 743'. Up to 550' it passed through conglomerates and water-bearing strata, and only struck the true coal measures at 695'. Mr. Reid expects to strike the coal seam in this bore-hole at 900'. This would seem to indicate that there has been a fault or slip of some 300' between the bore-hole and No. 2 pit, and in close proximity to the latter. Most probably this is the origin of the water difficulty. The board is advised, however, that this should offer no insuperable difficulty to the successful working of coal through the present pits, and Mr. Reid considers that once the difficulties of sinking are overcome an output of 2,000 tons a day may be counted on for the full period of 60 years without attempting to cross the fault. As soon as the serious nature of the water difficulty in Honan became apparent the board took steps to send out an engineer of great experience to advise with Mr. Reid and report on the whole situation. This gentleman left at the end of August, and his report may be expected before the end of the year. The issue of a permit to begin working coal in Shansi is still delayed, notwithstanding the utmost efforts of Mr. George Brown, the syndicate's agent-general in China, supported by the British Legation. This is solely due to the recent anti-foreign agitation which has strongly developed in Shansi, A recent cable, however, from Mr. Brown leads the Board to hope that the permit will be issue very shortly. As soon as the coal question is settled the directors propose to go on with iron smelting in Shansi, in which, as already stated, the Chinese Government has a participation. In view of the information now given the board do not consider it necessary at present to call a shareholders' meeting for the current year.

## ROYAL JOHORE TIN MINING COMPANY

Following is the report presented at the seventh general meeting held April 20th.

Your directors submit herewith the report

and accounts for the seventh year of the Company's existence, commencing on the 25th January, 1906, and ending on 13th February, 1907.

The amount of ore obtained during that period was 2,987 piculs, with an average force of 400 coolies, as compared with 2,079 piculs and 320 coolies in the previous year.

An interesting example of the type of ingenious devices invented to meet these conditions is what is known as the Lima Telephone Jack Box, a contrivance to be fastened to the telephone poles along the line, and furnishing a socket into which may be inserted a plug bearing a telephone wire. The cuts show the method of using the box and the details of its construction. The cross-section shows the plug engaged and ready for conversation. The spring jacks are made of extra heavy material and are mounted on a fibre block. The connections pass through mica bushings and are soldered to the weather-proof wire on the back of the spring jack holder. The plugs have long handles and are so constructed as to leave no metal parts exposed in the jack box. The plug is equipped with a fuse as a protection against heavy currents. The lock washer at the bottom securely holds the spring jack holder in the casing and cannot be removed without special tools. This prevents irresponsible persons from tampering with the inside of the box. In operation, communication is cut off by withdrawing the plug, when automatically the ball drops back and closes the opening against the entrance of dust, moisture and insects. A cone-shaped mouth serves to guide the plug, and in conjunction with the outer cast-iron shell of the receptacle forms a double petticoat to shed rain, sleet and snow. The device is used on the lines of the Ft. Wayne, Van Wert and Lima Railway Company, one being installed every half mile. It is also in use on the lines of the Muncie and Portland Traction Company in Indiana, and in other places. Its use has demonstrated its value in service, as it makes it impossible for any car ever to be more than a quarter of a mile from direct communication with the central dispatcher. Delays at switches on single-track roads are thus practically eliminated, and the safety and speed of operation of this class of roads greatly increased.

## SALASA COPPER MINES

In the vicinity of Salasa, in the province of Pangasinan, a number of valuable copper deposits are reported and some development work has been done. The deposits are located in that part of the province formerly known as the north-west coast of Zambales. In all six claims have been staked out, the original locators being J. R. Rice and W. Crooks. There are also interested in this group, C. M. Jenkins and Colonel Kennon. One of the veins on this property is reported to be about 110 feet in width and assays of the ore are reported to be highly satisfactory.

The property is situated on the coast and the ore can be loaded on vessels with a minimum of expenditure. The harbor is protected and close to the copper there is over 20 fathoms of water.

THE ENGINEERING NEWS PUBLISHING COM-PANY, NEW YORK CITY, U. S. A .- The Field Practice of Railway Location, by Mr. Willard Beahan, B. C. E., division engineer, Chicago and Northwestern Railway, late chief of locating party on Gould's Southwestern System of Railroads, U. S. A., is a new publication by this company that should appeal to every engineer in the Orient. It is a most valuable guide for locating parties. It contains eight chapters which deal exhaustively with the character of the road; reconnaissance for route; organization, subsistence and equipment of survey parties; the preliminary survey; geology in its relation to topography; the locomotive; train resistances and the located line, and the records and cost of surveys.

## FAREASTERN COMPANY REPORTS

## VALLAMBROSA RUBBER CO.

The Vallambrosa Rubber Co., Ltd., has declared a final dividend of 40 per cent, making—with an interim dividend of 15 per cent—55 per cent for the year.

## THE PATALING RUBBER ESTATES

The Pataling Rubber Estates Syndicate (Limited), operating on the Klang river has announced a dividend for the year ending December 31, 1906, of 30% which together with the interim dividend of 10% paid last November makes 40% for the year. The annual report makes a reference to the presence of tin on some of the Syndicate's property.

#### LINGGI PLANTATIONS (LTD.)

A wire to the *Times* of Ceylon says that the Linggi Plantations, Limited, pays a final dividend of 10 per cent, making 15 per cent for the year, and carries forward £834. The crop of rubber was 17,288 lbs.; and the estimate for 1907 is 35,500 lbs. Also that the directors' report of the Highlands and Lowlands Company, is due on the 4th June, and a dividend of about 11 per cent is expected.

#### CONSOLIDATED MALAY COMPANY

A special cable from London announces that the Consolidated Malay Co., Ltd., has paid a dividend of 10 per cent, for the year, and carried forward £700. The Company have an area of 4,279 acres of which 1,279 acres are planted and a large area is in course of being planted. They have 82,600 rubber trees 17,300 of which are from over 8 to over 5 years old, 63,300 over 3 years and 2,000 Rambong trees 5 to 8 years old. The amount of dry rubber produced for the year ending December 31, 1906, was 32,500 lbs. Coffee is also in bearing on parts of the estates.

## DAI NIPPON SUGAR REFINERY

A general meeting of the shareholders of the Dai Nippon Sugar Refining Company was held on May 27, when a dividend for the first half of this year was declared at the rate of 20 per cent per annum.

## KINTA MINES (LIMITED)

The Directors of Kinta Mines, Ltd., have declared a further dividend of 6d. per share.

#### ORIENTAL TELEPHONE AND ELECTRIC CO.

The accounts for 1906 show that, inclusive of £1,737 brought forward, and after deducting interim dividends, the disposable balance is £13,133. A final dividend of 4 per cent is proposed on the ordinary shares, making 7 per cent for the year, and £3,500 is transferred to reserve, leaving £1,035 to be carried forward. The China and Japan Telephone and Electric Company's exchanges at Hongkong and Kowloon continue to make progress. The electrical branch has been worked to a moderate profit; but competition in the East, as elsewhere, has been very keen.

## MESSRS. VOEKEL & SHROEDER, (LTD.)

At the annual meeting of Voekel & Shroeder (Ltd.) in Shanghai a dividend of 10 % was declared for the year ending December 31, 1907.

## A. S. WATSON & CO., (LIMITED)

At the annual meeting of shareholders of Messrs. A. S. Watson & Co., (Limited), a dividend of 4% was declared for the year ending December 31, 1906. With the interim dividend of 4% paid in November of last year this makes 8% for the year.

## TRONOH TIN MINES (LIMITED)

The remarkable announcement that the Tronoh Tin Mines had paid the shareholders of that company 127½ % on their capital in the five years of its existence and that during the present year a dividend of 50 % would be declared, was the feature of the annual meeting of the shareholders of the company in London, recently.

#### MESSRS. WEEKS & CO., (LTD.)

At the seventh annual meeting of Messrs. Weeks & Co., (Ltd.), at Shanghai, a final dividend of 6 %, making 10 % in all was declared for the year ending December 31st, 1907.

#### REUTER'S TELEGRAM CO.

The report states that the balance for distribution for the year ended Dec. 31 amounted to £4,844, including £81 brought forward. The directors now declare a dividend of 4s. per share, equal to 2½ per cent, making a total distribution, tax free, of 5 per cent for the year, leaving £108 to be carried forward.

## PENINSULAR AND ORIENTAL S. N. CO.

The directors of the Peninsular and Oriental Steam Navigation Company announce a dividend at the rate of 5 per cent per annum on the Preferred stock, and an interim dividend at the rate of 7 per cent per annum on the Deferred stock of the company for the half-year ended March 31.

## EASTERN EXTENSION, AUSTRALASIA AND CHINA TELEGRAPH COMPANY

The report for the half-year ended Dec. 31 states that the gross receipts amounted to £296,394 against £317,100 for the corresponding half-year of 1905. The working expenses, including £12,855 for maintenance of cables, absorb £139,549, against £135,597, leaving a balance of £156,844. From this is deducted £3,411 for income-tax payable in England and donations to China relief funds, and £15,048 for interest on mortgage debenture stock, leaving as the net profit for the half-year £138,386. After adding £88,959 brought forward, there is an available balance of £227,344. One quarterly interim dividend of 11 per cent has been paid for the half-year, and it is now proposed to distribute another of like amount, making with the interim dividends paid for the first half-year, a total dividend of 5 per cent. It is also proposed to pay a bonus of 4s. per share, or 2 per cent, making a total distribution of 7 per cent, for the year 1906. The sum of £75,000 has been transferred to the general reserve fund, and the balance of £17,344 carried forward. The company's New Zealand and China cables have been partially renewed during the past year, and the cost, amounting to £44,-160, has been charged against the general reserve fund. With a view to further improving telegraphic communication with the Far East, the directors have obtained a concession from the Dutch Government for the laying and working of a submarine cable between Java and the Cocos Islands. The communication is expected to be opened towards the end of the current year, and will provide an alternative route for the company's traffic.

## DEUTSCH-ASIATISCHE BANK

The Deutsch-Asiatische Bank for the last year declared a nine per cent dividend (1905: 11 per cent). The Russo-Chinese Bank pays nine per cent dividend (1905: 10 per cent.) and puts aside an extra-Reserve of Rbls. 400,000.

## THE NEW LONDON AND AMSTERDAM BORNEO TOBACCO CO.

The general meeting of shareholders of the above company was held at the offices of the company, 54, Old Broadstreet, E. C., on March 14. Mr. Edward Dent (Chairman) presided, The Secretary having read the notice convening the meeting,

The Chairman said: On Feb. 10 last the order of the Court was given sanctioning the reduction of the capital of the company from L1 per share to 7s. 6d., in accordance with the resolution passed by the shareholders on June 25 last. Notice has been sent to all shareholders intimating that a return of 3s. a share can be made, and the majority have received this payment. The Manchester North Borneo Rubber shares are due to be delivered at the end of the month. These shares are fully paid, but the Langkon Rubber shares are only 10s.

paid. Just sufficient money has been placed on deposit to meet future calls, which will be spread over the next three years. It will not be expedient to pay up these shares in full now, because any sum paid in advance of calls would not receive the 4 per cent, guaranteed by the Chartered Company, an arrangement having been made with the latter and the Langkon Rubber Co. that the calls shall be made at fixed periods. Both this company and the Manchester are actively engaged in planting rubber, and as the soil of Borneo seems very suitable for its cultivation these shares may in a few years become of some considerable value. A good many shareholders prefer that the company should retain them for the present. You will see by the balance-sheet that the property has been written down to £16,000. This is represented by some 20,000 acres, of which 10,000 are on the Kinabatangan, where some of the best tobacco in Borneo was grown. When we planted there the prices realised were always high, but the yield per acre fell short. I think that now, a company starting with sufficient capital, and planting tobacco along the river frontage, would not only secure the quality required but also sufficient quantity, as we made a good profit in one year with only a yield of 5½ piculs to the field. Having ceased all work ourselves in Borneo, we propose to reduce office expenses to a nominal amount, and wait for an opportunity of realising our remaining assets.

The Chairman then moved the adoption of

the report, which was carried.

Mr. Lloyd proposed the re-election of Mr G. A. Köttgen to the Board of Directors. This was seconded by Mr. Muller and carried.

The auditors, Messrs. Turquand, Youngs and Co., were re-appointed, on the motion of Mr. Lloyd, seconded by Mr. Creagh. The meeting then terminated.

## CHINA MUTUAL LIFE

In their annual report for the year ending March 31, 1907, the directors of the China Mutual Life Insurance Co. announced that the total income for the year amounted to 2,339,340.16 dollars being an increase of 18% over the fiscal year 1906.

The income from interest amounted to 274,-

163.86 dollars, a gain of over 110%.

The total assets amount to 4,989,042.00 dollars, a gain for the year of over 37%.

The reserve set aside to meet maturing pol-

icies to amounts to 4,296,721.53 dollars an increase of over 39%.

The surplus of assets, over and above lia bilities including paid up capital amounts to 526,575.79 dollars. The total security to policy holders, inclusive of subscribed capital, now amounts to 5,508,228.82 dollars, an increase of over 30 %.

## CHINESE ENGINEERING AND MIN'G CO. LD.

The Chinese Engineering and Mining Company, Limited, has declared an interim dividend of 7½% (1s 6d per share) free of tax, for the half year on account of the financial year ending 28th February, 1907, payable on May 1st.

This is an unusual amount to be paid, and speaks well for the present management as hitherto only 5 % has been paid.

## VICTORIA JUTE CO., (LTD.)

The directors of the Victoria Jute Company, Limited, in submitting to the shareholders the accounts of the company for the year ended 31st December 1906, state that the working account for the year shows a profit of £50,969 18s. 8d. After payment of repairs and replacements, interest on loans, income tax at head office and Calcutta, expenses in connection with the recent increase of capital, and other appropriations, and including the balance £493 2s. 6d. brought forward from last account, the net profit amounts to £36,289 os. 1d.

#### ABERDEEN JUTE CO.

The directors, in their report for the year ending 31st January last, state that the credit balance amounts to £3,043 9s. 11d., which with £335 10s. 9d. brought forward from the previous year places a net sum of £3,379 os. 8d. at the disposal of the shareholders. The directors propose that this amount be applied in writing down the book value of buildings and machinery, £1,000; in paying a dividend of is. per share, and in carrying forward to next year £254 2s. 8d. Buildings and machinery have been upheld in good working order .- Calcutta Capital.

## THE HOWRAH-AMTA LIGHT RAILWAY CO., LTD.

Report.-The directors have pleasure in submitting the audited accounts for the twenty-third half-year ended 31st December, 1906.

The total expenditure on capital account at that date was Rs. 17,90,006-7-11, additions being made during the half-year of new locomotives and rolling stock to the amount of Rs. 1,50,380, and an extension of the Kadamtalla workshops at a cost of Rs. 351-0-0. The total expenditure on capital during the half-year was Rs. 1,51,173-12-6.

Revenue.—The gross earnings for the halfyear were Rs. 1,74,208-2-3 as compared with Rs. 1,60,978-3-9. The working expenses were 48 per cent of the gross earnings; in the last half-year the working expenses were 49 per cent.

The balance transferred to net revenue

account is Rs. 72,580-5-2.

COACHING.—The gross earnings from passenger traffic for the half-year was Rs. 1,58,-026-8-3, the number of passengers carried being 4,93,279, as compared with Rs, 1,46,-576-11-6 and 4,65,879 passengers respectively or the last half-year of 1905.

Goods Traffic .- The receipts from goods traffic were Rs. 15,856-9-6, being Rs. 1,825-7-9 higher than the corresponding period of 1905.

DIVIDEND.—The amount at credit of net revenue account, including the balance of Rs. 22,054-1-9 brought forward is Rs. 69,053-15-2. The directors recommend that the of Rs. 10,000 be added to the renewal reserve fund, which will then stand at Rs. 1,00,000. After making this provision, allowing for depreciation on the machinery at Kadamtalla, providing for interest on the debentures (Rs. 9,000) and the district board's share of profits (Rs. 17,605-1-0) and transferring as a bonus to the staff to their provident fund Rs. 1,370-3-2, the net balance available for distribution is as stated above Rs. 69,153-15-2, which the directors recommend being disposed of as follows:-

By payment of a dividend of Rs. 3-8 Rs. A. P. per share (free of income tax) equal to 7 per cent per annum... 45,500 00 Carrying forward...... 23,553 15 2 lotal..... 69,053 15 2

Martin & Co., Managing Agents. The balance-sheet is as under:-

LIABILITIES. Rs ASSETS. Capital...... 13,00,000 Block ...... 17 90,006 Debentures... 3,00,000 Stores, &c ...... 33,464 Reserves ...... 1,04,736 Outstandings .. 5,616 Other Debts. 1,28,301 Cash ..... 73,005 Profit & Loss. 69,054

Total.... 19,02,091 Total... 19,02,091

#### THE HOWRAH-SHEAKHALLA LIGHT BAILWAY CO., LTD.

REPORT .- The directors have pleasure in submitting the audited accounts for the past half-year ended 31st December 1906.

The total expenditure on capital account at that date was Rs. 6,14,396-8-4. There was no expenditure during the half-year under this head.

REVENUE.—The gross earnings for the halfyear were Rs. 46,158-2-0, as compared with Rs. 43,863-1-6 for the corresponding period of 1905.

The working expenses were Rs. 26,831-6-11 or 58 per cent of the gross earnings, as compared with Rs. 24,993-14-7 in the corresponding period of 1905. The balance transferred to net revenue account was Rs. 18,299-14-2.

DIVIDEND .- The amount at credit of net revenue account including the balance of Rs. 496-13-10 brought forward is Rs. 15,228-10-5. The directors recommend that the sum of

Rs. 2,000-0-0 be added to the renewal reserve fund which will then stand at Rs. 23,000-0-0.

After making this provision, allowing for the district board's share of profits (Rs. 1,280-11-9) and the bonus to the staff (Rs. 457-10-9) which is transferred to their provident fund, the net balance available for distribution is as stated above, Rs. 15,228-10-5, which the directors recommend being disposed of as follows:--

To payment of a dividend of Rs. 2-8 per share (free of income-tax) equal to 5 per cent. per annum..... 15,000 0 0 Carrying forward..... 228 10 0 15,228 10 5

Martin & Co., Managing Agents. The balance-sheet is as under:-

LIABILITIES	Rs.
Capital Reserves Debts Profit and Loss	6,00,000 23,000 13,368 15,228
Total	6,51,596
ASSETS	Rs.
Block Stores Outstandings Cash	6,14,396 9,500 74 27,626
Total	6,51,596

## MINING IN F. M. S.

In the course of a journey from north to south of the peninsula, the writer collected the opinions of many leading members of the Malay mining world as to the present outlook. The views expressed bear so marked a resemblance that only a few selected opinions will here be given, the opinions of men who should need no introduction to the majority of the readers of this paper.

STEADILY INCREASING YIELDS.—Mr. Chappel, of Messrs. Osborne & Chappel, thus sums up his views:-"I do not think there is any reasonable possibility of the aggregate yield of tin from the Federated Malay States rapidly increasing. Although a few large plants are now being installed, such as at Redhills and Rambutan. and will, if as successful as we have cause to anticipate, doubtless lead to the rise of similar enterprises calling for capital and mechanical skill, the steadily increasing yields from these concerns will be more than neutralized by the falling-off in returns from the shallow deposit worked on the Chinese system."

Confirmatory of this, the opinion of Mr. Liong Fe (owner of Tambun and member of the Perak State Council) may be given:- "Relying upon the small workers, the yield must dwindle, for the easily treated deposits are nearing exhaustion. Whether the industry in Perak expands or not depends largely upon outside capitalists and investors, to whom we look for the money to bring the deeper deposits to a producing stage with suitable mechanical appliances."

Mr. O'Brien, the Californian manager of Bruseh, notes, in reply to a query:-"The most striking feature of mining affairs at present is

the losing of ground by the wasteful Chinese miner, who has practically picked the eyes out of the country, and the advance of the white miner, who is making excellent profits out of ground the Chinese could not touch."

Mr. Foo Choo Choon, vendor or owner of the Tronoh, Kledang, Chankat Pari, Sungei Besi, and other mines, accentuated, through his interpreter, the necessity of adopting machinery to displace labor. The price of tin he considers more or less self-regulative; if the price increases, a bigger output will be recorded, bringing it down again. "If the price remains where it is now (about £200 per ton at time of conversation), the yield will certainly advance in magnitude."

WELL-NIGH INEXHAUSTIBLE.—In striking contrast to the average, appears the opinion of Mr. Ng Boo Bee, owner of Kamunting and employer of 4,000 coolies:-"The tin is well-nigh inexhaustible, but cannot be won owing to labor shortage. Immigration from China is at a standstill owing to the increased prosperity of that country and its railroad-making activity. This circumstance checks the yield and will result in the high price of tin being maintained." Like many other mine-owners, Mr. Boo Bee also had a word of censure for the Government's system of taxation, or more particularly, for the heaviness of the duty.

Mr. H. E. Nicholls, Superintendent of the Pahang Corporation, refers to the prospects of the Eastern State thus:—"A considerable experience of the old deposits, both alluvial and lode, convinces me that no satisfactory results will be obtained therefrom; the deposits are far too uncertain and irregular to be worth opening, Occasional rich pockets are met with, but these are few and far between. Encouraging results have certainly been obtained from alluving. though, so far, nothing to compare with the deposits on the western side of the peninsula have been met with. Whether the opening-up of the country will develop richer fields, is an open question. The lode deposits of the Kuantan District certainly have a big future before them.

GENERAL OUTPUT .- Mons. Legros, manager of the French Mining Company, is strongly in opinion that the output of the Malay States will continue to decrease, owing to the dearth of the surface deposits, and that the opportunities of the European investor and engineer will proportionately increase. He doubts whether the opening of the application books would greatly affect the position. Kinta is likely to maintain its pre-eminence for years to come.

Mr. Chun Thye Phin, M. C. (owner of mines in Gopeng, Taiping, and Tronoh districts):-"I do not look for any general expansion of the industry. We are now greatly troubled with our coolies, who are independent and desert freely. In view of these labor troubles, I have installed training services where possible, and lengthened the working day."—Penang Gazette.

## THE NUMBER OF CHINESE ABROAD

According to the latest Chinese official investigation, the total number of Chinese in other countries is as follows, not including the students:-

Japan, 17,673; Russian Asia, 37,000; Hongkong, 314,391; Siam, 2,755.709; Burma, 134,560; Java, 1,825,700; Australia, 34,465; Europe, 1,760; Corea, 11,200; Amoy, 74,500; Malaysia, 1,023,500; Annam, 197,300; The Philippines, 83,785; Africal, 8,200; America, 272,829; total 6,793,531.

## OPENING UP NEW AUSTRALIAN TERRITORY

Consul F. W. Goding, of Newcastle, reports that the Territory of Northern Australia, until now held by South Australia, is to be taken over by the federal government. This is a subtropical region, with an excellent river system. The Victoria River alone drains 90,000 square miles. There are about 60,000 sheep in the country, while of cattle one ranch alone has 60,000 to 70,000 head. The mineral deposits are abundant, there being a wide stretch of tin-bearing country, while gold and copper are also found.

## PERAK, THE PREMIER SECTION OF THE FEDERATED MALAY STATES

The Federated Malay States have already been dealt with on general lines, but I may · perhaps give a few remarks concerning the premier state of Perak, which has been so considerable a factor in the successful rise of the F. M. S. during the last thirty years. Its figures have really advanced in a progression that seems almost to pertain to the fairy book. Thus the revenue for 1906 is expected to realize over 13 millions of dollars. The Perak balances on Dec. 31, 1906, will be about \$15,400,000. Under these flourishing circumstances the High Commissioner has sanctioned an extended Road Programme for 1907, and the Lower Perak District has been chosen. It will be connected with Kinta and Batang by road for the first time, and the new roads are estimated to cost \$805,000, say near £100,000. This is in addition to the normal. Owing to rubber, land revenue has increased \$50,000 in Perak, and the tin duty being on a graduated scale augments the revenue from the high quotation reached by the metal. The collection in 1906 would probably be \$5,000,000, a sum handsome enough to lead to many forward movements.

In Thaiping, the seat of the Residency and the capital of the State, there are some changes and improvements, though the place in general aspect seems much the same. There is a fine new block of Government buildings, and the museum has been put into good order. The block of buildings comprising the gaol, on the most modern lines, is about to be considerably added to, and will be constituted into a Federal Gaol, where long sentenced prisoners from all the States will serve out their sentences. This will separate the more hardened class of criminal from the only casually criminal, and should likewise prove more economical in the long run. For the incorrigibles deportation is resorted to, that is amongst the Chinese. They are sent back to China. Passage is paid for them, clothes provided, and a sum of \$6 each placed in their hands wherewith to begin a new life either of usefulness to the community or a further career of crime on shores that do not affect the F. M. S. From the gaol let us look at the hospital situated in its fine spacious grounds laid out with such care. Here all is in good order, whilst one is attracted to a building at the extremity of the grounds where the indigent paupers are looked after. It was formerly the custom when tin ore was being weighed for assessment of duty that the weighing took place without fee being imposed. The idea was then mooted—the author of which I was not acquainted with—that a small fee should be imposed, and the resultant sum used to provide for those in need. The mine owners readily agreed, and a fee of 3 cents a picul was imposed that has provided an ample fund for the purpose for which it was intended. Indeed, in Perak there is a surplus, I understand, in this, what I may call, "3 cent provident fund," of something over \$40,000. In November, 1906, only the figures for 1905 were available. In that year 216 persons, mostly Chinese, had been cared for, and there were 125 inmates on the last day of the year. The men are not under more than voluntary restraint, and they may, if so disposed, carry on certain trades and earn independent money. They seemed happy and contented, besides achieving which result the institution frees the streets of beggars, paupers, and those whom affliction or disease has prevented earning a livelihood. The suggestion has been an excellent one, and has wrought much good throughout the States. In relation to hospitals I may note in Mr. Birch's last report, that for 1905, he records with pleasure the good work that is being done in the private hospitals for women established by Dr. Wright in Thaiping and carried on by Dr. Connolly in Ipoh. Dr. F. E. Wood, in writing of the District Hospital, Larut, points out that the number of venereal cases treated was 650 less than in 1904, and he attributes this result to the establishment of Dr. Wright's hospital.

Thaiping and Perak generally is enthusiastic over its Rifle Association, and it has some reason to be proud of its records. It has likewise enthused the ladies, who have their own associa-

tion. I was privileged to be present at one of the meetings on the excellent range of the M. S. Guides at Thaiping. It was a pleasure to see the enthusiasm shown and the several creditable scores that were returned. It is a wholesome thing that women dwelling amongst considerable alien populations—even when, as in the F. M. S., the risks are reduced to a small compass—should possess some knowledge of firearms and how to use them.

When you are at the rifle range you are near the road that leads up to that agreeable, if sometimes foggy, climate to be found on Thaiping Hill. At its summit, or say anywhere above 3,000 ft. up to the highest point, say, very near 5,000 ft., you may get a climate approaching that at home, and where the thermometer even at mid-day does not struggle up more than a few degrees over 60 Fahr. Here one may recuperate, enjoy cold nights, a warm fire, and such things that are not usually associated with Malaya. There is a good road up, but one feels inclined to dream of a railway which would open quite a residential quarter easily attained. The elevation and conditions beat Penang Hill, and it is almost as easy of access. One might look on this hill as a sanatorium for the white troops at Singapore, and where a school might be conducted for white boys under far more advantageous lines than could ever be attained on the sea level or thereabouts. Such a school would approach home conditions without the necessity of going home at all. Readily accessible, by, say, a railway, Thaiping Hill might be made of value to the health of the whole white community. At present there are only a few Government bungalows, which are also loaned to others than Government servants when not wanted by them. Thaiping is being improved in the matter of the law and gardens. Several of the unsightly mine holes have been filled up, and spots thus found for dumping mining silt. This is done at no cost to the State, and I imagine has checked the breeding grounds of the pestiferous and poisonous mosquito. A portion of the lake enclosure is being devoted to planting specimens of all the best hardwood trees in Malaya. By the way, the avenue planted by Sir Hugh Low in the main street of Thaiping still flourishes, as do the teak trees planted also by that Resident, to which the States owes so much, between Kwala Kangsar and Padang Rengas. Seed has been preserved, and other roadsides are to be similarly adorned.

And now I would pass on to Kwala Kangsar, where the really chief thing to note is the higher Malay School to which I have already called attention in my letter on the F. M. S. A capital site has been retained for the new buildings, and the recreation ground has already been laid out. Near by is the Malay Art School, where an excellent attempt is being made to revive Malay industries. Here sarong weaving is carried out, pottery made, silver ware worked, and wood carving carried on. These industries were sorely in danger of dying out. It is to be hoped that they will have been rescued from their moribund state. At this, the Malay capital, his Highness the Sultan graciously received us. He is known to many in London where he was last on the occasion of the Coronation. His Highness is much beloved by his people, and stands high in the Malay world as a good ruler. Of other matters I may note that the well-known Enggor pontoon bridge, so often carried away, still spans the Perak River at some distance below the railway bridge. It has been suggested that as a result of the latter the pontoon bridge should be transferred to Blanja, where it is thought it would now be of more real service. And before leaving Kwala Kangsar one may note that the pass between there and Thaiping still retains its many beauties, amongst which is the commanding Gunong Pondoh at its Kwala Kangsar end. The railway now traverses the pass, but the road through is still excellently maintained, as I discovered when the Resident motored us through on the excellent little car that the Sultan kindly lent us.

The mining capital of the State is at Ipoh, which I found had nearly grown out of recollection. The Chinese town has greatly increased,

the European population has practically doubled, and improvements have been made on every hand. One wonders in such an alive spot, which one might almost dub "motocaria" from the comparatively large number of cars that are always about, that Ipoh has not demanded the electric light. The necessary water power, as in the case of Kwala Lumpur, must be available at no great distance, and would provide both public and private lighting. At present the Lux light is in favor for street lighting, and is efficient when properly looked after. But this does not seem to be done as carefully as might be, viewing the number of lights that seemed to be always shut off. Ipoh also boasts of a fine new Court House, of a new bridge over the river to Brewster Road; it is going in for a deflection of the river and reclamation of a considerable piece of useful land as a result; the price of land has greatly enhanced, and there is a splendid new Chinese theatre, besides the fine Panglima Street. The old Government offices remain picturesque in their Malay architecture, and it is adjacent to them that the memorial Clock Tower to the murdered first Resident, Mr. Birch, will be erected. There is also to be a bronze bust of Mr. Birch, which is being executed by Mr. Hamo Thornycroft. The idea of perpetuating the memory of Mr. Birch is excellent, for his loss led to the States being taken in hand, and the consequent progress that can now be seen. One wonders, however, why Ipoh has been elected as the site of the memorial and not some spot nearer the scene of the untoward murder. Perhaps Ipoh is selected from being the most important town in the State. Of other towns one may note the prosperity of Batu Gaja and the growing importance and advance of Kampar. There is also the agricultural settlement at Setiawan, where some 300 persons from Foochow have settled down. Live stock occupies much of their attention, whilst there were no less than 20,000 rubber trees planted at the end of 1905—a number that has since been considerably increased. No wonder we are told that every encouragement is extended to the experiment.

#### THE KRIAN IRRIGATION CANAL

One of the most far-reaching improvements that has been carried out in Perak for a long time has been the Krian Irrigation. It is truly a magnificent work, and should confer very great benefits on the district and the State. The formal opening took place in August last, when the ceremony was performed by the Resident, Mr. E. W. Birch, C. M. G., before a large gathering of Europeans and Natives. The district is eminently suited for the growth of padi, but the rainfall has proved so fitful that the cultivator could never depend, say, on two crops in successive years. The project now completed has been under discussion for over fifteen years; now it is realized, and over 50,000 acres have been added for annual cultivation. Like all such projects the cost has steadily risen over the original estimates. The work began in 1899 on an estimate of roughly three-quarters of a million dollars; it was completed in 1906 at a cost of something over \$1,500,000. The Perak finances could fortunately bear this cost for a work which, as Mr. Birch pointed out, will some day enable the inhabitants to raise a rice crop from about 70,000 acres of land, which will give the people a potable, if not perfect, supply of water which will enable them to make the land of their adoption a permanent home, and which will result in their building for themselves houses of a more durable and comfortable type. With assured crops we may hope for the establishment of rice mills, say on the Krian and Kuran rivers, and the people may anticipate better prices without paying for the maintenance of an army of small middlemen. The work is truly a grand one, and can scarcely be considered to be over capitalized at \$22 per acre, which is what the cost of the reclaimed land with its 56 miles of canal works out at.

A word finally on the happy system of work that prevails throughout Perak. All who know Mr. Birch know what an energetic official and efficient Resident he makes. He has the faculty of enthusing most of those under him with the same tireless species of energy. He

certainly succeeds in getting his men on to the same end of the rope, and inducing them to pull with him and with each other. He is down on a shirker or a slacker, and such may probably soon find himself moved elsewhere. Good men are attracted, and he himself indents for a good man for Perak whenever he comes across or hears of one. Indeed it is reported, how truly I will not vouch for, that another Resident asked for a good officer for some department, and the answer came back: "None such available." All good officers have been absorbed by Perak. Of course, this does not cover officers of the Federal Government. However, it speaks well, and accounts possibly for the work and the system carried on in Perak.—London and China Express.

The bridge is to have two main steel lattice girders of about 100 feet span between centers of supports and 30 feet span cross girders to be fixed on lower booms of main girders carrying road platform and also cantilevers carrying side footways.

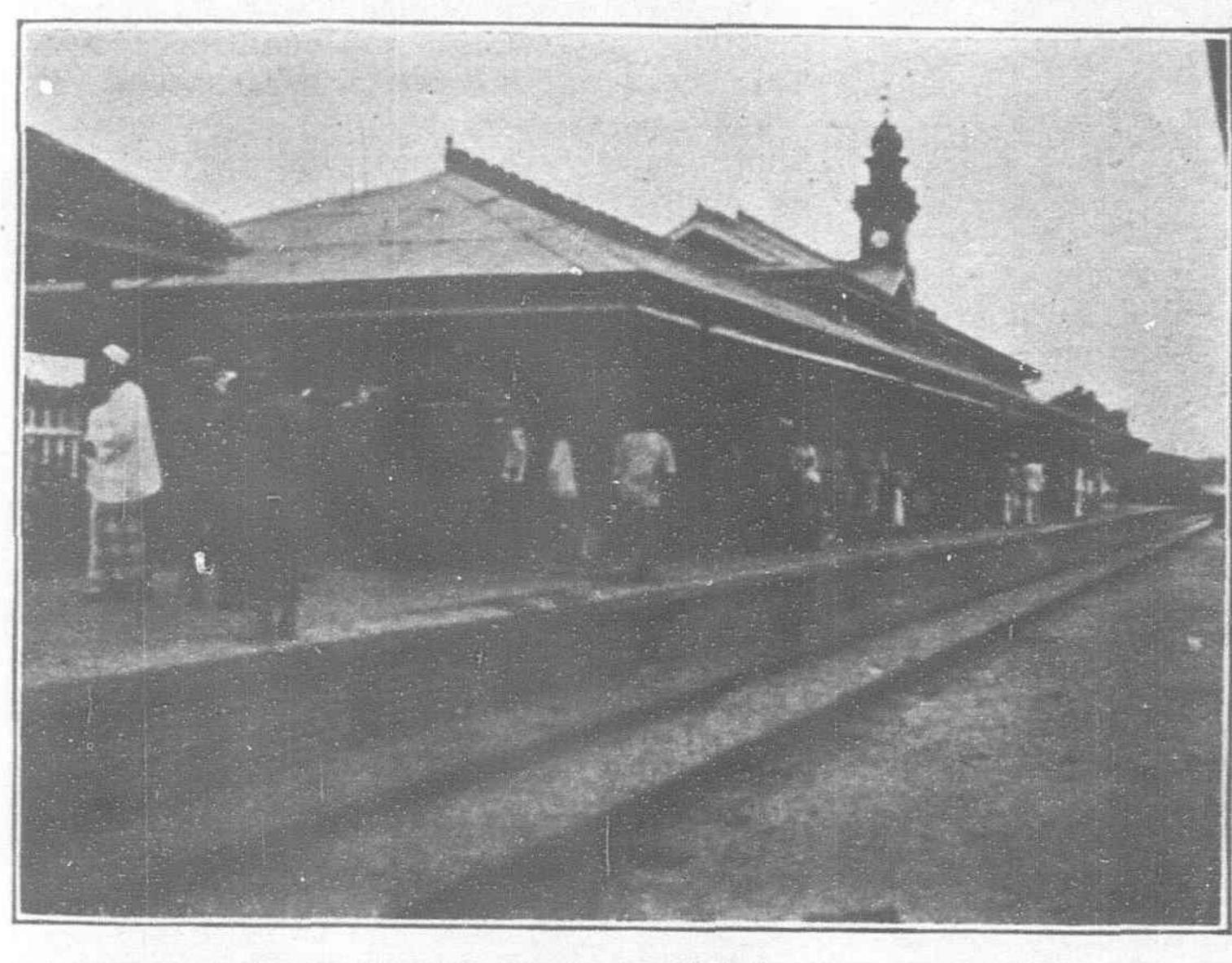
The two main girders are to be placed 30 feet apart clear width of roadway or 32 feet, 6 inches apart center to center of girders.

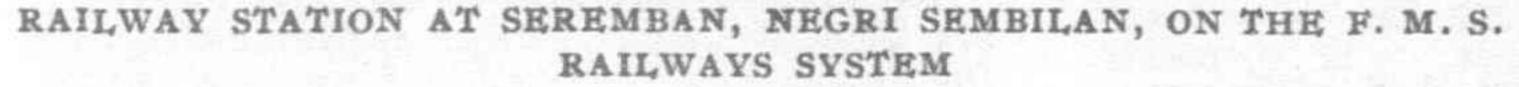
#### THE AEROGRAPH

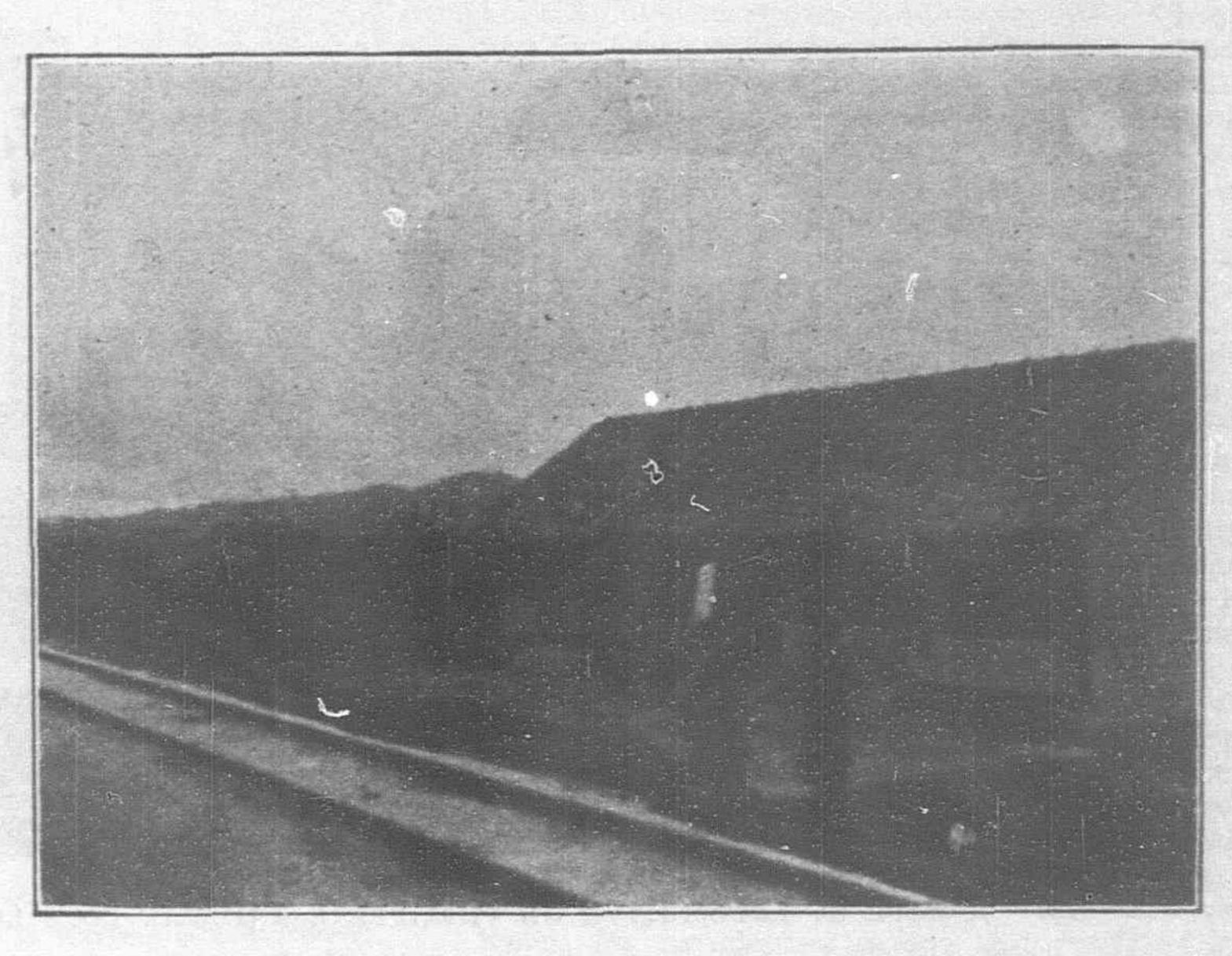
THERE are various methods of applying a coat of paint to a surface, and the usual Indian mistri's method of daubing it on with a rag is unknown to Western craft, except

## RAILWAY AND MINING DEVELOPMENT IN CHINA

The reorganization of China has been termed the world problem of the twentieth century, and whether in retrospect it may appear as far reaching as it does in prospect, there can be no doubt that for existing States and political relations its potentialities are vast, and the effects possibly imminent. It is customary to regard the character and policy of Oriental countries, and especially of China and Japan, as largely inscrutable to Western minds; but this vein of thought is little more than the measure of our ignorance of the people and the land—an ignorance which is, perhaps, the most primary reflection presenting itself when we ap-







COOLIE LINES, NEAR SEREMBAN ON THE F. M. S. RAILWAYS SYSTEM.—
TYPICAL BUILDING OF THIS CLASS

## FEDERATED MALAY STATES RAILWAYS

The main trunk lines of the Federated Malay States Railways enters the province of Perak at Parit Buntar on the North and joins the section running through the province of Selangor on the south at Tangjong Malim, the distance between these two points being over 165 miles. The main line continues southward through Selangor for a distance of 81 miles passing through Kuala Lumpur and Negri Sembilan. With the branch roads The Federated Malay States Railways system includes about 400 miles of track.

Other lines are under construction through Pahang and surveys have been completed for the route through Kelatan to Kota Bahru at the mouth of the Kelatan on the coast of the China Sea.

The illustrations refer to the railroad station at Seremban the capital of North Sembilan and coolie lines near Seremban.

These buildings are typical of the respective classes to which they belong.

## SUNGEI PENANG BRIDGE

The Municipality of George Town, Penanghas entered into contracts for the construction of a steel bridge over the Penang River on the Jelutong Road which will cost upon completion almost 100,000 dollars silver. The contract for the construction of the abutments, wing walls, etc., has been awarded to C. E. Peterson, the price being \$45,290 and the tender of Tan Yee Koon for the filling in and road approaches, pitching, etc., at a cost of \$12,000 was accepted.

Messrs. Howard Erskine & Co. were awarded the contract for the construction of the iron work and its erection on the abutments. The price agreed upon was £3,331 38.

The contracts provide for the construction, supply and erection complete of all steel and iron work required for the bridge and its maintenance in good order and repair for a further period of six months.

in the nursery stages of artistic endeavor. The spray system of applying paint or wash is the latest and most efficient system, particularly for covering large surfaces, and the illustration to this article shows the "aerograph" plant. To quote a home contemporary on the subject:—

"Take its use with any of the washable distempers. It will, without any disturbance, evenly distribute a new coating upon present work without any danger of rubbing up, streakiness or washing off, and in so little time as to be less trouble than a dust-down or wash-over. The spray drives the color into all the interstices of enrichments leaving a beautifully fine stipple-like surface. It leaves no splashes about to be washed off anywhere, and the whole thing is done from the floor in the same time that it now takes to land two men and their scaffolding on a job.

"Then take an outside, stucco-fronted house job. How rapidly it is thoroughly coated from top to bottom—the work of at least four men done in less than the time of one of the four.

"A machine that will evenly distribute a coat of paint thickly or thinly in fine, sharp lines, or cover an area a yard in diameter at will, and only requires the same guidance that the water-can does, has a future to be reckoned with."—Indian and Eastern Engineer.

## ESPERANTO SOCIETIES

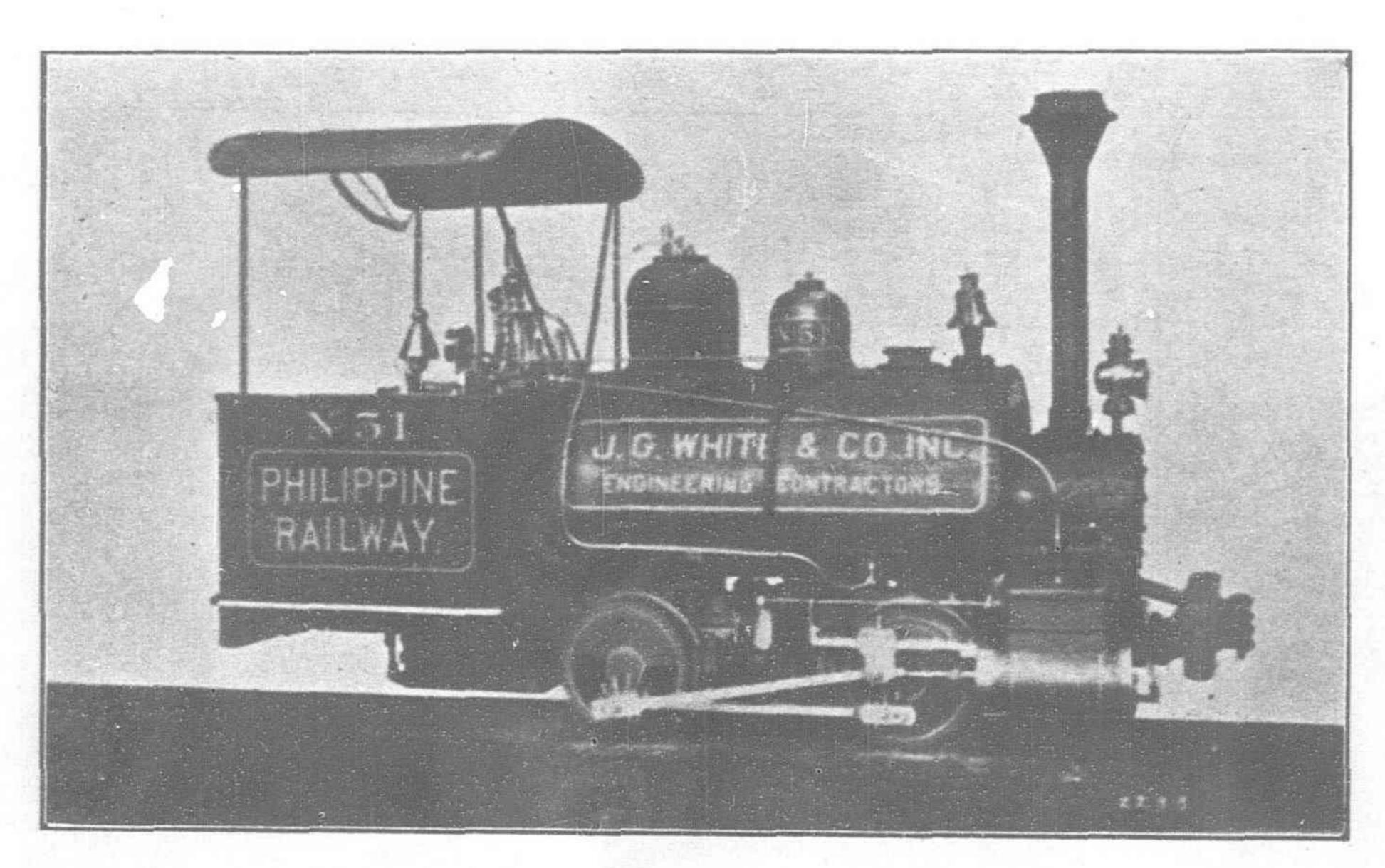
The Philippine Esperanto Society was organized at Manila July 1.

The Singapore Free Press announces that the Malaya Esperanto Society has chosen W. G. St. Clair for acting president and S. C. de Souza for acting secretary to complete the term until the annual meeting in December, owing to the departure to Europe of the president and secretary elected for the year.

proach the consideration of the current position. One has only to remember the mutually exclusive opinions common as to the ethos of the Japanese nation to realize how complete a bar an entire unconformity ol language, literature, and conventional signs presentsa difficulty vastly increased in the case of China by its size, variety, and retarded development. Mere geographical aperception is an obstacle through varieties of spelling and unintelligibility of names, to say nothing of the absence of maps on the scale we possess for other countries. Upon this country, owing to the competition of the Europeanised nations, modern material progress is being rapidly forced, which in the present stage of development of that large and densely populated empire may for practical purposes be considered as railway construction. In the north the transformation is most marked, as, owing to the great political interests involved, money has been poured out abundantly, and Peking and Manchuria now possess railway communication for which they would have waited many years had private or native capital been requisite for its construction. Semipolitical considerations also apply to the communications of Peking with the coast, and of Tsingtau with Chinan. Of strictly inland communications there is a big line from Peking to Hankow, connecting the capital with the central provinces. With this exception, however, practically all the railways outside of North China at present working are feeder lines. They are Shanghai to Woosung, which is being extended to Nanking, and will be finished this year; P'inghsiang to Liling, by which fuel is transported to the Shiang river for the Hanyang ironworks and Hankow. There is a small section of railway from Canton to Samshui, open in Kwangtung; and a small feeder line which connects the Hankow-Peking railway with the Peking Syndicate's mines in Honan. Of lines under construction, the most noticeable is the extension of the trunk Peking-Hankow south to Canton, from whence, as we were reminded by a

share issue in this country recently, an extension to Kowloon is in progress. In the south-west the Tonkin railway is under construction as far as Yunnan. A short line is being run from Swatow to Ch'auchou-fu. As we have seen, the Shanghai railway is being completed to Nanking. In Honan, K'aifeng and Loyang are being connected, while further north a feeder line is being run from the main trunk at Chenting to T'aiyuan. North-west from Peking itself communication is being opened with Kalgan beyond the Great Wall. Of projected lines, the most important is the westward extension from Hankow through Hupeh into Szechwan. The Shanghai-Nanking railway will be extended

practically all exported to Hongkong. Whether it reaches that port via the Tonking railway, and is thence distributed again into China, or figures as a genuine export oversea, the Customs returns do not make clear; at any rate, there seems to have been a slightly largely amount of tin available from China in 1904-05, as, while the exports were higher in the latter year, the imports were in 1904, 63,950 piculs; and in 1905, 54,170 piculs. So far, however, as affects the metal markets of the world, China is of more importance as a consumer than producer. All will remember the effect produced upon the copper market by the Chinese purchases in 1904 and 1905 for their copper coinage require-



TYPE OF LOCOMOTIVE ON PHILIPPINE RAILWAY CO.'S LINES

in a southerly direction along the coast as far as Ningpo. Canton, besides the line to Kowloon, will be joined to Amoy and Kanchow-fu in the Kiangsi province. In the same province, Kiukiang and Nanch'ang-fu also are to be connected. The enumeration of these various enterprises, not to mention those less definitely projected, though possibly somewhat unintelligible without the assistance of the map, serve, at any rate, to indicate how extensively the idea of railway construction is being accepted in China, where not long ago it met with equally general hostility. The effect of this policy upon mining and its allied industries, both directly and secondarily as departments of commercial activity, must be of great and increasing importance. China is recognized as being in many provinces extensively mineralized, and there is at the present time considerable prospecting activity. In addition to natural resources, moreover, the Empire possesses what, when conjoined to natural wealth, is perhaps of even greater importance-viz., unlimited labor and a vast home market. These circumstances give a special importance to the coal and iron resources of the country, which are known to be of great magnitude. A promising start has already been made in the production of iron, the exports of which increased from 981 piculs in 1903 to 201,848 piculs in 1904 and 413,209 piculs in 1905, the latest year for which statistics are available, during which year the Hanyang ironworks supplied over 30,000 tons for export. The other metals exported in 1905, of which record appears in the Imperial Maritime Customs returns, were 94,327 piculs of antimony and antimony ore, as compared with 116,434, 141,662, and 180,150 piculs respectively for each preceding year back to 1902. There was a small and declining output of quicksilver amounting to 279 piculs in 1905. The tin output of China is a matter on which considerable uncertainty exists; the exports, however, are given as follows:-1902, 64,284 piculs; 1903, 41,527, piculs; 1904, 50,391 piculs; 1905, 75,302 piculs. In each case the export is practically exclusively derived from the Mengtze district of Yunnan, and is

ments; and if, as has been stated of late, a gold currency scheme were to be adopted, the enormous volume which Chinese trade would be likely to assume, were there a credit system commensurate with that enjoyed by Europe, would undoubtedly make considerable demands upon the existing gold supplies of the world, which, in the opinion of some economists, at any rate already support as much credit canas be reasonably expected. Of the commercial importance of the organization of China upon modern lines, such as has been accomplished by Japan, it is unnecessary to speak, as given national stability it could probably absorb and return good interest on most of the surplus capital which European and American investors are likely to have available over a lengthy period of time. As regards mining investments, however, the conditions are at present exceedingly unsatisfactory. A code of mining regulations was promulgated in 1902 which, in addition to uncertainty of title, fixed royalties of five per cent on the output of coal, iron, antimony, alum, and borax, ten per cent on petroleum, copper, lead, zinc, sulphur and cinnabar, 15 per cent on gold, silver, galena, and quicksilver, and 25 per cent on diamonds and crystals; in addition to which 25 per cent of the surplus, if any, remaining over after the replacement of capital and repayment of interest is claimed as a further royalty. These regulations have since been amended under Articles 9 of the British and 7 of the United States commercial treaties with China executed in 1902 and 1903 respectively; but the new conditions are said to be even more impracticable than those of the 1902 regulations. One serious difficulty would appear to be that uniformity can only be obtained by the creation of some central department of mines, and at present so far as it is possible to judge, the central government does not possess the power to secure the effective observance of such a code by the district and provincial authorities.— The Mining Journal.

#### PHILIPPINE RAILROAD CONSTRUCTION

The work on the proposed lines of railroad in Luzon is being carried on with vigor and the results have exceeded expectations. On the line running north from Dagupan, to San Fernando de Union, fifteen kilometers have been graded and rails laid for ten kilometers.

On the Camp One branch of the Dagupan-San Fernando line from San Fabian to the Benguet Road, eight kilometers have been

graded.

Ten kilometers have been graded on the San Pedro Magalang line connecting with the main line of the Manila Dagupan, and on the San Fernando de Pampanga Florida Blanca branch grading has been completed for twenty-four and one-half kilometers; the rails laid for nine kilometers while some ballasting has been done.

On April 17, the Manila Railway Co. began operating the Mariquina-Montalbon branch. This line is 12.9 kilometers in length.

Thirty kilometers of the Manila-Batangas branch have been graded and the rails laid for about two kilometers.

The grading on the belt line in Manila, covering a distance of 9.50 kilometers has been completed.

Ten kilometers have been graded on the Cavite branch or better known as the Cavite short line. This line when completed will cover a distance of 32 kilometers.

The Philippine Railway Co. has completed the grading of 40 miles of the Cebu road and 12 miles of steel have been laid. This work is divided equally north and south of Cebu.

In Panay 20 miles between Iloilo and Pototan have been graded and about three miles of steel laid. Some steel has also been laid in the Iloilo yards.

For the present, construction work has been suspended in Panay on account of the rainy season, and in Cebu it is not expected that much will be accomplished until it is over.

The probable average of hours of clear weather per diem during the rainy season will govern the extent of the operations of the company.

Supplies for the Philippine company are coming in regularly. In all there is sufficient steel in the company's warehouses to lay 80 miles of track. By December the supplies for the construction of all the buildings will have arrived and with the closing of the rainy season in the Visayas and Cebu all work will proceed with renewed vigor. At the present time a small force is working on the proposed building in Cebu, more to familiarize the employees with that class of work so as to be prepared to undertake the more extensive construction after the materials arrive. The steel bridges are expected to arrive in October.

## A. K. LA MOTTE BOOK EXCHANGE

A. K. La Motte, the pioneer dealer in books and contemporary magazines, is ever extending his business to keep pace with the growing demand for scientific works in the Philippines. The headquarters at 72-74-76-78 Calle Real, Intramuros, is stocked with probably the greatest collection of valuable works on electrical, mechanical and mining engineering, in the Far East. These volumes are carefully selected and represent the most advanced thought along these lines.

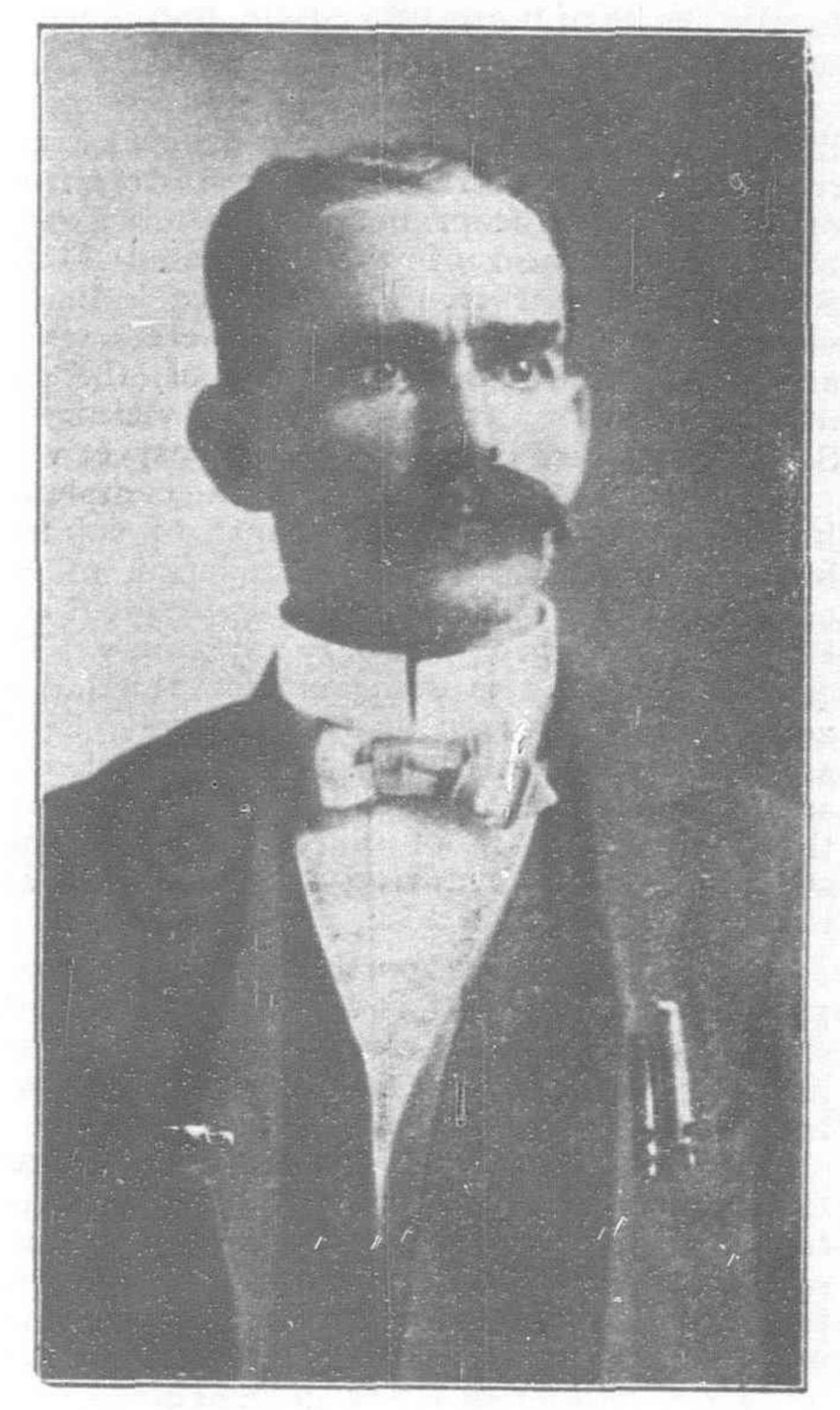
Mr. La Motte takes a great personal interest in catering to a large clientele among the scientists and engineers which is constantly growing.

From a small beginning this firm has grown to be one of the most important in its particular line in the islands. Mr. La Motte sacrificed his business interests in the homeland to follow the American flag to the Philippines and was patriotic enough to remain and cast his lot with the islands and their future.

When Mr. La Motte started in business in the Philippines he decided to work on a strictly cash basis. Every dollar's worth of stock in his establishment is paid for and it is rarely that the value of the stock in hand is less than P30,000. He makes a specialty of handling magazines and periodicals and imports as high as two tons of these publications on each

mail steamer that touches at Manila, the largest amount ever consigned to one dealer in the East. These periodicals represent the best literature of the world and they are distributed among Mr. La Motte's customers throughout the length and breadth of the archipelago.

Mr. La Motte is interested in many of the leading commercial enterprises of the Philippines. Among these are the Benguet Consolidated Mining Co., the Eastern Mining Co., and the Manila Building and Loan Association. He was one of the original promoters of the Manila Merchants' Association and one of the first directors of this enterprising organ-



A. K. LA MOTTE

ization. In view of his remarkable ability, he was selected as chairman of the legislative committee of this body.

In connection with his extensive business, Mr. La Motte has established a curio department which is of the greatest possible interest to tourists and visitors to the Philippines. His collection of curios includes the characteristic product of almost every wild tribe in the islands and has been conceded to be the most extensive to be found anywhere in the Philippines.

Mr. La Motte believes in giving his patrons every comfort and attention and has added to his establishment a confectionery section where nothing is left to be desired. This business so successfully developed is the work of a little over three short years of well directed effort.

## JAPANESE TEXTILE MACHINERY

One of the most interesting sights at the exhibition was the three new Japanese-invented looms, and, as showing what Japan is doing in invention, they are important. They are inferior to the British and much inferior to the American looms, but are ingenious, and illustrate the growing determination of the Japanese to strike out along new lines and to manufacture their own textile machinery as well as their own textiles. What first strikes one is the amount of wood used. The frames of all three are of wood, and wood is used wherever practicable, such as loom beam heads, whip rolls, levers, shuttle boxes, etc. The largest loom was labeled "The one Tsuda system Habutai Power Loom," and was made by the Matsuwo Works, Azabuku, Tokyo. It is

used for weaving the transparent silk habutai about 36" in width. Except for the wood used and modifications in details this loom is not important.

The next loom was for weaving silk or cotton cloth about 24" wide and was notable for its method of harness raising for its stop motion, and also for being self-contained; that is, no driving belts, pulleys, gears, or levers being outside the framework. The driven pulley was under the loom at the middle of the cam shaft and was belted from below, and belt shifted by foot lever at front of the loom. There were no cams, treadles, or strapping used to operate the harness. The two harnesses used had wooden ends and slide in grooves in the framework. To the center of each heddle frame end was fastened a curved iron rod, the other end of which was attached to a short-screwed crank arm on the cam shaft. As the cam shaft revolved, this crank arm through this rod imparted a reciprocal up and down motion to the harness, and by means of the set-screwed crank arm their motion relative to each other and to the lay could be adjusted. The width of shed could be regulated by changing length of rod where it joined the crank arm. The picking motion was also peculiar. While the picker stick was thrown with cams, levers, and lug straps in the usual way, the picker stick proper was under the loom and half the usual length. It was of wood, but at the top there was hinged by means of a screw an iron rod that ran out horizontally and curved up into the shuttle box, and the end of this rod carried the picker firmly attached. With this arrangement, owing to the hinge construction, the picker moved in a straight line, and there was no need of any parallelization of the picker stick motion. This loom also had an ingenious warp stop motion attachment operating through the heddles.

The third loom was used for weaving the narrow print cloth that is usually made about 13½" wide. It showed more points of dissimilarity from the usual styles, especially American makes of looms, and so was of more interest than the others. No lug straps were used, but the power was applied to the picker stick by means of a lever striking a casting on foot of picker stick. The foot of the picker stick was bolted into a casting that was pivoted on a horizontal bolt from another casting on the end of the sword rock shaft. A wooden lever was pivoted at the back of the loom on the side, and its front end rested on the projecting casting attached to the foot of the picker stick. An iron piece with projection was bolted to the middle of this lever. The end of cam shaft projected beyond the loom and carries a free roller on the crank pin of a short crank arm set-screwed on the end of the cam shaft. As the cam shaft revolved, the roller was carried around and strikes the casting on the lever, which was forced down and struck the projection on the pivoted casting carrying the picker stick, thus causing loom to picker. The picker stick is brought back into position by a spring arrangement. Of course no parallelization of the picker stick was possible. The picker was loose on the end of the picker stick and kept in position by the sides and tops of the wooden shuttle boxes. This picking motion is patterned after a common English make, but is modified. The shuttle boxes being made of wood there is no binder used to check the shuttle and prevent rebounding. The checking is accomplished by two loops of leather, one inside the other fastened with thumbscrew to projection under end of the lay.

The last two looms were made by the Toyoda Shokai Company at Nagoya. The company makes in all four styles of looms, viz: (1) The wide loom for 30 to 36" cloth with iron frame. This loom has not been a success—50 tried at the Kanegafuchi mills are to be replaced with English looms; (2) the narrow loom with iron frame; (3) the narrow loom with wood frame; and (4) the narrow loom with wood frame and automatic stop motion. The No. 3 is the most popular. It is stated that this factory has sold between two and three thousand of that loom, and are now making 300 a month. There are 230 of these narrow looms used in a branch of the Miye mill at Nagoya, but the

majority of them go to small hand and power loom establishments scattered throughout the Empire. A large number of these small establishments are operated by various kinds of power, steam, water, oil, etc., the majority, however, probably being run by gas engines. The price of this narrow loom with wood frame is only -Y-95=\$47.50, so it is, the cheapest loom of any efficiency that can be obtained for this purpose.

## JAPANESE TRAINING SHIP, THE TAISEI MARU

The Japanese steel training ship, Taisei Maru, is perhaps the most modern of its kind in Far Eastern waters and splendidly equipped for the purpose for which she was designed. The following description will be of interest:

1. Principal Dimensions. Length between Perpendiculars, 270'-0", Breadth, moulded, 44'-0", Depth, moulded 26'-9"; Height of Tween-decks 7'-6"; Gross tonnage 2298.15.

2. Genneral Description. This ship is built to a model approved by the Nautical College (Shosen Gakko) of Tokio, and fulfils the requirements as a Training Ship. She is a 4-masted barque, provided with two sets of auxiliary engines, driving twin screws capable of steaming her at the maximum speed of 10 knots per hour, on fully loaded condition. She has two complete decks, and full poop, midship houses and topgallant forecastle; handsome outwater stem and elliptic stern. There is accommodation for 13 officers, 120 students and 54 crew.

Double cellular bottom, extending from after end of Engine Room to forepeak, and deep tanks before and abaft the machinery space.

3. Class and Certificate Built of Steel of the best quality, except where otherwise specified, in accordance with Japanese Government Shipbuilding regulations and Lloyds Rules, for two-decked sailing ship, with additional requirements for steamer in way of the machinery space, the aft-peak, etc.

The hull and machinery are constructed under Lloyds Special Survey, and classed 100 A1., M. C., having Lloyds Freeboard mark on ship's side. All necessary certificates are supplied.

4. Stability. Complete set of stability curves, for varied conditions of loading are supplied, and the height of the centre of gravity ascertained by inclining experiments to satisfaction.

5. Materials. All the materials tested to the requirements of Lloyds and Japanese Government Regulations.

6. Double Bottom. Constructed on the cellular system for water-ballast, extending from aft engine room bulkhead forward to the fore-peak tank, and holding about 300 tons of water-ballast. The double bottom space is divided transversely into four separate tanks. The tank in engine and boiler space has a central longitudinal watertight bulkhead, and divided into four separate tanks arranged and fitted for carrying both water-ballast and fresh water for feeding the boilers. Pumping well in machinery space, being formed on each side of the middle line, between centre and margine plate; fitted with efficient and approved non-return valves on tank sides, to prevent possibility of water finding its way into the hold through well in the event of accident to the outer bottom. All necessary pipes and valves so arranged that water can be drawn from or filled into each double bottom compartment separately.

7. Deep Ballast Tanks and Peak Tanks. Two deep tanks; the one placed before the coal bunker, and the other situated abaft the engine space and around the shaft tunnels where there is no inner bottom plating. The forward tank has a central watertight bulkhead, and is fitted complete with all pipes and valves for pumping and filling water-ballast. It carries 353 tons of salt water ballast. The after deep tank has watertight flat extending from side to side of the ship, at the level of tunnel crown, and divided into two separate compartments by a transverse watertight partition and arranged to carry 230 tons of water ballast in two tanks. It is fitted with all the necessary pipes and valves for filling and discharging.

## PENANG HARBOR IMPROVEMENTS

An expenditure of £119,000 has been recommended by Messrs. Coode, Son and Matthews of London in their report on the proposed harbor improvements at Penang which was recently submitted to the legislative council of the settlement for action. If these plans are adopted, when completed, Penang harbor will be made one of the most desirable in the Far East. Messrs. Coode, Son and Matthews' report follows:-

London, 25th Sept., 1906.

Gentlemen.-With further reference to your letter of 1st February, 1904, wherein you instructed us to make the necessary arrangements for the engagement of Mr. Warren, to proceed to Penang, in order to prepare a survey and procure such local data as we required to enable us to report on a proposed Reclamation project and other works at Sungei Pinang, and on the mud banks to the northward thereof; for the reasons given in subsequent correspondence, Mr. Warren was unable to leave for the Colony until the end of April following.

2. The nature of the Report we were required to prepare, is set out in paragraph (c) in a letter addressed to us by the Acting Colonial Secretary on 16th December, 1901, as follows:--"The best means of reclaiming the mud flat between Church Street Ghaut and Sungei Pinang, so that it may be utilized

for berthage and godowns."

3. Mr. Warren was engaged on the survey above referred to until 18th March, 1905, when he was transferred to Singapore to procure certain data and information in connection with the Tanjong Pagar Arbitration, and the proposed Lagoon Wet Dock and Wharf Reconstruction Works, also at Tanjong Pagar.

4. Mr. Matthews arrived at Singapore at the end of September, 1905, and was engaged there on the business of the Arbitration and the proposed Harbor Improvement Works and Singapore and at Tanjong Pagar, until the end of November following, when, accompanied by the Colonial Engineer, the Honorable A. Murray, and Mr. Warren, he visited Penang, en route to Colombo.

5. Since Mr. Matthews' return home, we have been much occupied in connection with Tanjong Pagar, Singapore and other Colonial Works, so that we regret we have not been able, until recently, to again take up this matter, although the quantity drawings and estimates have for some time been in readiness. We trust that no inconvenience will have been experienced from this unavoidable delay.

6. We have referred in paragraph 2 to the question remitted to us for Report with reference to the Sungei Pinang Reclamation and the works associated therewith. Before Mr. Matthews left Singapore for Penang he was requested verbally by His Excellency Sir John Anderson to enquire, whilst at the latter, into the desirability of extending the Iron Pier (since named the Swettenham Pier) and as to any other works it might appear desirable to put forward for consideration.

7. The numerous plans and documents prepared and collected by Mr. Warren as the outcome of his survey in 1904 1905 with regard to the Sungei Pinang project are ready for consideration, but inasmuch as the further study of the questions involved and the preparation of the Report thereon will still occupy a considerable time, we have thought it desirable to submit this Report, without further delay, especially as it deals with the works which we were given to understand during our inspection, are deemed locally to be of more immediate and pressing importance.

8. We have attached hereto a plan in illustration of the following remarks and recommendations. It shows the western front of the Harbor from near Fort Cornwallis to just southward of the Federated Malay States Railway Pier. The borings indicated on this sheet and the results thereof which are given, show the character of the bed of the Harbor at and in the vicinity of Swettenham Pier and of Weld Quay respectively.

9. The Swettenham Pier, as completed, has an external berthage length of 600 feet, being ample for the accommedation of one of the largest liners which frequent the Port, or for two ordinary steamers. The depth alongside is sufficient for the largest vessels at low water of spring tides. Berthage is also provided for a smaller steamer at the inner face of the southern portion of the Pier, which is of much value for transhipping purposes during the season of the tobacco trade.

10. The berthage portion of the work is 50 feet in width. It is approached from the shore by a Viaduct, also 50 feet wide, the junction between the two being fanned out

to prevent congestion of traffic.

11. When at Penang, we carefully inspected the New Pier at the time of low water and found its condition generally to be extremely satisfactory. The portions of the ironwork from low water to about half tide level, were thickly coated with barnacles, small oysters, and other shell fish and marine growths, forming a species of matting, and thus affording effective protection to the face of the iron. Similar growths appeared to extend below low water as far could be observed.

12. In this connection we may state that the removal of oysters from the face of the structure should be prohibited, otherwise pitting of the iron will occur where such

removals have been effected.

13. The design of the work, provided for the vital portion of the piles, viz., just above and beneath low water level, to be encased with iron plating, filled in between the backs of the latter and the faces of the piles with cement concrete, in order to prevent pitting and corrosion. This provision appears to have answered quite satisfactorily, and promises to afford efficient protection in the sense contemplated.

14. The crowded condition of Weld Quay was very noticeable, as also of the Harbor front immediately seaward of it. The traffic here was greatly congested in consequence of the numerous junks, sampans, tongkangs, and other craft, lying between Swettenham Pier and the Railway Jetty, and also, but in a less degree, along the frontage to the south-

west of this last named point.

15. It is evident, in consequence of the continued and regular accretion of mud, along the south-west margin of the Harbor, that floating traffic is being largely concentrated, over the length of frontage at and in the vicinity of the Railway Jetty, and between it and the new Iron Pier.

16. The Church Street Ghaut Wharf, a T shaped structure, was in an extremely dilapidated condition. It was completed in January, 1898, and, in less than seven years therefrom, some of the piles were completely cut off by the action of the teredo worm, the deck in places having sagged and being devoid of support.

8. Hatchways, Cargo and Coaling Ports. Three hatchways fitted and arranged with winches, derricks, etc., for working cargo, and six coaling ports, two of which are specially fitted for the purpose.

9. Coal Bunkers. Capacity is 138 tons. (Spare coal is taken in holds.)

10. Drying Room. Built of Steel in front of machinery casing.

11. Deck Houses and Hood. On upper deck steel houses are arranged for Library and Reading Room, and Galley and Scullery, Library is tastefully panelled and separated from Galley by Bulkhead insulated with silicate of cotton.

A steel Hood is on after end of poop over the steering gear and entrance to Lazarette; and steel companion way with side seats forming skid-light provided to students' quarters and a small steel companion to crew's accommodation on the lower deck.

12. Fresh Water Tank. Iron water tank holding 20,000 gallons in all, built into ship

in 3 compartments around tunnels.

The fore and after peaks are also arranged for carrying either salt water ballast or fresh water, and are fitted with pumps and valves for filling and discharging.

Masts and Spars. The fore, main and mizen lower and topmasts, bowsprit, lower yards, lower and upper topsail yards, and jigger lower mast made of steel, topgallant and royal masts and yards, spanker boom and gaff are of best Oregon pine.

Pigging is of best flexible steel fire rope. Standing rigging set up by wire lanyards on the fore and main masts and by screws on the mizen and jigger.

Sails. Two complete suits.

Boats, 1, 28' Steam cutter; 4, 26' Lifeboats; 1, 25' Gig; 2, 23' Japanese sampans.

Anchors. 2, 40 cwt Bowers. (Trotmans); 2, 34 cwt Bowers (Trotmans); 1, 12 cwt Stream (Trotmans); 3, 7 cwt., 5 cwt., 3 cwt Kedges, weights ex stocks.

Cables. 270 fathoms, 2 1-16" Chain cables; 100 fathoms, 4 ½ "Steel wire hawser.

Engines. Direct-acting, inverted, triple expansion. Two sets working cranks set at angles of 120 degrees, each set working a three-bladed Propeller of Manganese bronze. The twin propellers working inwardly and set sufficiently apart from each other as to dispense with the

screw aperture in front of the rudder. A friction clutch is fitted at the after end of tunnel shafting, for disconnecting propellers when ship is under sail.

Ballast Pump. Worthington's type capable

of discharging 250 tons per hour.

Dynamo and Electric Light Machinery. Two in number, fitted abaft engines. One of sufficient power for ventilating fans of baggage rooms, store, cabins double bottoms, etc., and for lighting of tunnels, water gauges, and portable lamps in stores, etc., in day time. About 5000 output in Kilowatts, Another for use at night, with necessary connections to cabins, navigating lamps, and other parts of the vessel illuminated. About 15000 Kilowatts. Machinery of Bellis's closed type.

Refrigeration Machinery. J. E. Hall's patent carbonic anhydride, for storage of fresh provisions, of sufficient power to maintain a cold chamber of 2000 cubic ft. at a uniform temperature of 30 degrees Far.

Motors. Two, each of 3 B. H. P., to work ventilation fans. Also a small motor to work workshop machinery.

Main Boilers. Two single ended return tube cylindrical type, 12 ft. diam. by 10 ft. 3 in. long. Two furnaces in each boiler. Working pressure 1801 lbs.

Auxiliary Boiler. Cochran's vertical, fitted with all necessary connections to electric light and refrigerating machinery, auxiliary engines, steering engines and deck machinery, etc. Working pressure 120 lbs.

Deck Winches. Three Clark and Chapman's, connected with main and auxiliary boilers. Windlass and Capstans. Napier Bros. pat-

ent steam windlass, geared to a capstan on forecastle deck. Also six double power hand capstans, for warping, etc.

Steam Steering Gear. Cardwell's vertical, supplied by Bow McLachlan.

Hand Steering Gear. Screw gear aft supplied by Bow McLachlan. Also hand gear fitted in front of screw gear and connected with quadrant.

Telegraphs. Engines, steering, and docking

telegraphs by Chadburn & Sons.

Accommodation. Main saloon, captain's and principal officer's cabins fitted in polished white oak, other officer's and engineer's cabins similar to those in the first class of an ocean steamer. Cadets dining saloon and cabins similar to second class.

17. We understand this Wharf has now been repaired. When the time arrives for future renewals we would recommend that the existing structure should be superseded by a light iron screw pile jetty, suitable for tongkang traffic, the outer leg of the T being say 500 feet in length and 45 feet in width, placed say, 60 feet seaward of the present outer arm and kanted somewhat in the direction of the Pontoon Landing of the Railway Jetty, so as to give a greater depth alongside at low water. Berthage would be available on both sides of this Arm, and a broad connection with the shore should be provided for the convenient carrying on of the increased traffic that might be expected to follow from the erection of such a work.

18. At the time of the inspection to which we have referred, the Hon'ble J. K. Birch was good enough to arrange for interviews with two representative members of the Legislative Council, the Hon'ble A. Huttenbach and the Hon'ble J. Bromhead-Matthews, and also with members of some of the leading mercantile and shipping firms in Penang. Valuable information was likewise furnished by Captain Macintyre, the Harbor Master, who also accompanied Mr. Matthews when inspecting the Pier and the approaches to the Harbor.

19. A list of gentlemen who attended at the Government Offices, and so kindly gave us the benefit of their experience with regard to the requirements of the Port and the working of its traffic, is given in an appendix attached hereto. To each of these gentlemen we desire to express our thanks for the valuable opinions which were so readily and

courteously expressed.

20. With only one or two exceptions, all the gentlemen, who were consulted with regard to the nature and extent of the Harbor Improvements which are most necessary to meet the wants of the Port, were of opinion that the new Iron Pier should be extended, the additional length required being generally considered as 600 feet, thus increasing the berthing face from 600 feet, as at present, to 1,200 feet, and thereby providing accommodation, simultaneously, for two of the largest liners which frequent the Port, or for three ordinary steamers, and also for two small vessels alongside the inner face.

21. It was pointed out in favor of the extension of the Iron Pier that, by the provision of a greater length of berthage thereat, steamers would be assured of accommodation on their arrival, and that in the absence of such assurance, it is preferred that vessels should lie out in the Harbor rather than

to come alongside.

22. We gathered from Captain Owen, the Pilot who is in charge of the North German Lloyd steamers on entering and leaving the Port, that he had not experienced any difficulties in bringing vessels alongside or in leaving the Pier either outward or homeward. He pointed out that he had brought vessels to the Pier during moonlight nights, but considered that on dark nights coming alongside might be attended with some risk, due not to the position of the Pier itself, but to the presence of shipping in the Harbor in its vicinity.

23. Reference was made by several gentlemen to the important benefits which would result from the widening of Weld Quay, southward of the Reclamation at that time drawing nearer completion, and extending on to and including the widened inner end of the Federated Malay States Railway Pier, thereby increasing the width of the Quay, over the length described, to the extent of from 70

feet to 90 feet.

24. Mr. Huttenbach was of opinion that a comprehensive scheme for Harbor improvements at Penang was urgently required, and that the extension of the Pier would not be sufficient or adequate in this report. Mr. Huttenbach was understood to favor a project of somewhat similar character to that originated by Sir John Coode, and described in his Report dated 31st March, 1891. This work consisted of an Island Pier, 1,250 feet in length, and 210 feet in the width, with a

Viaduct approach extending from the eastern end of Church Street Ghaut, the length of the Viaduct being 1,080 feet. The work was designed with a view to non-interference with the tidal circulation in its vicinity, and thus to provide for the maintenance of the berthage depth alongside, which was considered to be sufficient for ocean going steamers. The estimated cost of Sir John Coode's project was £333,000. It is not improbable, however, that a considerable additional expenditure would now have to be incurred, in consequence of increased prices in the interval. When considering the Sungei Pinang project, to which reference has been made in paragraphs 2 and 7 in the foregoing, and in preparing the Report thereon, we propose again to refer to the views expressed by Mr. Huttenbach as above.

#### RECOMMENDATIONS

25. After carefully considering the requirements of the Port, and the manner in which, for a given expenditure, the maximum amount of additional accommodation can best be afforded, we arrived at the conclusion in the Colony, which has been confirmed by subsequent study since our arrival home, that the Swettenham Pier should be extended as suggested by the Authorities in the Colony who were consulted with regard thereto. It is also in our opinion most desirable in view of the extremely congested condition of Weld Quay, more particularly between the Southern end of the Reclamation recently completed and the Federated Malay States Railway Pier, that it should be widened, also as suggested locally.

26. Having regard to the foregoing, we have now to put forward the following pro-

posals for adoption.

27. Inasmuch as it will not be practicable to extend the Pier for the whole length considered necessary, viz.--600 feet, in a northerly direction, in consequence of interference by tidal currents with berthage alongside, due to so great a prolongation at that end, and also to some extent from sea exposure, we are of opinion that the maximum length of extension to the northward should not exceed 345 feet and that the balance of the 600 feet of additional length, which appears to be necessary, should therefore be made southward of the southern end of the Pier, thus increasing the berthing accommodation, on the outer face, from 600 feet to 1,200 feet.

28. When putting forward the design for the Pier in its present shape in 1901, we pointed out that we did not at that time consider it desirable further to prolong the work in a southerly direction, in view of the unfavorable character of the Harbor bed at that end, and also with reference to the possibility of interference with the approach of tongkangs, etc., to the godowns between the landward portion of the Pier

and the Pontcon Jetty.

29. Experience has shown that no settlement has occurred at the Southern end, or any other portion, of the Pier, nor has there been interference with the navigation of craft to and from the wharf face and godowns thereon.

30. We are of opinion for the reasons above given, that a further prolongation to the extent of 255 feet at the southern end may be undertaken, without detriment to the working of the traffic nor is there a probability of settlement occurring in the new portion of the Pier, more especially as we contemplate, in connection with the southern extension, to increase the diameter of the pile screws, with a view to provide a greater bearing area along that length

bearing area along that length.

31. In our opinion berthage of not less than 1,200 feet is required for the accommodation of two large steamers simultaneously, and seeing that a length of 345 feet, or twenty-three bays of piles of 15 feet each, is all that can be provided at the northern end, the balance of 255 feet or 17 bays of piles of 15 feet each, should be provided to the southward. Both these extensions are shown by red color on the annexed plan.

32. At each end of the proposed additions to the Pier, and on the western, or inner face thereof, we have shown a Pontoon landing, of somewhat similar construction to those at Johnston's Pier, Singapore. These landings will be of much use for the accommodation of launches and boats to and from vessels in the Harbor. We mentioned the provision of these Pontoons to Captain Macintyre, and also to the gentlemen with whom we conferred when at Penang, and understood from them that such accommodation would be much appreciated, and would be of considerable value.

33. We gathered from Mr. Sielcken, who gave us valuable information, that by berthing steamers alongside the new Pier instead of lying out in the Harbor, there would be a more perfect check on the cargo landed; also that shortages of valuable cargo, and thefts, which are now so frequent, would, to a large extent, be obviated; moreover cargoes would be landed in better condition in consequence of being handled less.

34. Mr. Sielcken also pointed out that Penang would attract a large amount of transhipment cargo, as the natural port for Atjeh, Deli, the Federated Malay States, and Western Siam, which cargo is now sent to Sabang, Batavia, and elsewhere, in consequence of goods suffering from the present method of transhipment at Penang.

25. With a view to prevent congestion of traffic on the existing approach to the Pier, which in the absence of an additional shore connection might be looked for, we propose to provide a further approach Viaduct in the position shown by red color on the plan. The traffic due to that portion of the Pier southward of the existing approach would be conducted over the latter, whilst the traffic northward of that point would pass over the new Viaduct.

36. When in the Colony in November of last year, we arranged with the Colonial Engineer and his Deputy, Mr. Pigott, for the widening of the existing wharf wall in the position which was then defined, so as to form an abutment at the inner end of this additional approach to the extended Pier.

37. We presume that provision has been made accordingly, and therefore we have not included in the estimated cost of the works to be given hereafter, any sum consequent upon the work required in connection with this abutment.

38. As the Pier is being extended, the present buoys at the North and South ends and their attachments will require to be removed and fixed in new positions as may be deemed most suitable by the Harbor Authorities. Similarly, the lights at each end of the existing Pier would be refixed in corresponding positions with regard to the North and South

ends of the extensions.

39. It is satisfactory to be able to report that the depth alongside the berthage length of the Pier has been fairly well maintained, and although vast quantities of silt held in suspension in the water enter the Harbor, we do not anticipate that shoaling will occur in front of the Pier to such an extent as could not be readily removed by means of the Priestman Dredging crane which is available in the Port. Moreover, as we have previously pointed out, the frequent use of the Pier by steamers, and the disturbance consequent on the working of their propellers, will tend to the maintenance of the depth alongside.

40. We should point out that until the completion of the Reclamation North of the Pier, and the erection of the godowns thereon, full advantage cannot be taken of the accommodation which will be afforded by the Pier, when means are available for the ready storage of cargo prior to shipment and after being landed. This Reclamation and the godowns are being carried out by the Public Works Department and consequently do not form any part of the undertaking which has come under our immediate supervision as to construction.

41. About two and a half years from the receipt of the material in the Colony would be required for the carrying out of the two

extensions of the Pier, as shown by red color on the annexed plan, so as to render its finished external berthage length 1,200 feet instead of 600 feet as at present, or say three years from the receipt of the order to proceed, an interval of six months being required for the preparation and delivery of the materials, and the preliminary arrangements necessary in connection therewith.

42. It is proposed that the extensions should proceed from the north and south ends simultaneously, with a view to expedite completion, so that an additional erecting machine will be required, for which a sum has been included in our estimate.

43. With a view to improving the access to the Pier, and in order to afford sufficient space in front of the Government Offices and from thence leading on to the new godowns, and to the two approach Viaducts connecting the wharves and the Pier proper, we propose to widen the roadway from the Clock Tower towards the Harbor front as shown on the plan, the cost of which improvements is included in our estimate, but not any sum for purchase of land, which we assume will not be necessary, as the property in question, we are given to understand, belongs to the Government.

44. We have shown on the annexed plan by red color, a proposed widening of Weld Quay, southward of the reclamation recently completed extending to the inner portion of Church Street Ghaut Wharf, and from thence to the Federated Malay States Railway Pier, so as to include the root of the approach to the latter. The total length of this work would be 860 feet, and it would consist of a Quay Wall, similar in construction to the wall recently completed, the space between the back of the same and the existing quay being filled in to form a reclamation.

45. It is assumed that it will be necessary to widen the inner end of the Viaduct leading to the Railway Pier, as shown, so as to form a root to that work, of corresponding area to that of the present structure. The extent of this widening is also shown by red color on the plan.

46. The additional width of new wharf varying from 70 feet to 90 feet in extent, which would result from the proposed improvement at Weld Quay, cannot fail to be of material advantage in mitigating the confusion of traffic, and the extremely congested conditions under which business is carried on along the length of the Harbor front referred to. We would suggest that the proposed wall and reclamation should be carried out by the Public Works Department, as in the case of similar work to the northward.

47. We estimate the cost of the works recommended for construction, as follows:-

Northern Extension to Swettenham Pier, 345 feet in length and 50 feet in width, including an additional Viaduct approach from the new Quay face in front of the godowns in course of erection, out to the west side of the extension, and also a Pontoon Landing as described..... £57,50C-0-0 Southern Extension to Swettenham Pier, 225 feet in length and 50 feet in width, with Pontoon Landing ...... £39,000-0 0 Widening Weld Quay for a length of 860 feet, as shown on plan ..... £19,000-0-0 Widening inner end of Federated Malay States Railway Pier, as shown on plan and other work in connection therewith. Also forming widened Road in front of Government Offices ..... £3,200-0-0

SAY £199,000-0-0. 48. The sums we have named as the probable cost of the two extensions of Swettenham Pier, are based on the actual ex-

penditure on the existing work and include

£118,700-0-0

allowances to cover contingencies, engineering, and supervision.

49.—As named in previous Reports, the Harbor bed on which the Pier extensions would be constructed is of an exceptionally unfavorable character, entailing the use of specially long iron piles, and massive struts and braces. Moreover, the great weight of the steamers to be berthed alongside an open Pier of this character, erected on so unfavorable a foundation, necessitates special arrangements. We do not therefore consider that for a less expenditure, a suitable structure can be provided which will fulfil the required conditions in a satisfactory manner.

50. In conclusion we have to thank especially the Hon'ble J. K. Birch and the Hon'ble A. Murray, for the kind and courteous assistance which they rendered during our local investigations. Our best thanks are likewise due to Captain Macintyre, the Harbor Master, for his ready and active help and also to Mr. Pigott, who furnished us with such local particulars with regard to the quay walls, etc., as we required, and who likewise accompanied us during our inspections at Sungei Pinang. We have also to thank our Assistant Engineer, Mr. P. R. Warren, for the admirable manner in which he prepared the data we required.

We have, etc.,

COODE, SON & MATTHEWS.

#### BRIDGING THE YALU RIVER

The talk is renewed, says Japan Mail, of building a bridge over the Yalu from Sin-Wiju (new Wiju) to Yongampho. New Wiju is 10 miles down stream from the original Wiju and lies near Antung. The road-bed would be 40' over the water and the length of the bridge would be 3,329'. There is necessity to build on each side embankments some 300' long but the engineering difficulties are not thought serious. Tokyo newspapers assess the cost at -Y-2,000,000. It should be added that the bridge will be chiefly for railway uses, but there will also be a road for general traffic. We should have thought that an easier task would have been to bridge the river higher up, where its stream is broken by several islands, but of course this matter has received full consideration from experts. The road for ordinary traffic will be so arranged that it can be converted at any moment into the bed of an additional railway track. Junks will be able to pass under the bridge by merely lowering one section of their main-mast. It is expected that the bridge will be ready for use in 1909, which is about the time when the conversion of the Wiju Mukden line will be completed. Travellers will then be able to reach Mukden from Fusan without alighting from the train. We dare say that this railway inspires occasional uneasiness to the folks who are oppressed by the nightmare of a renewed conflict between Japan and Russia. The East-China Railway is useless to each Power alike for purposes of military transport. Neither could employ it in that way without such a violation of the Portsmouth Treaty as would amount to an act of war. But by means of the Fusan-Mukden line Japan will be at timesable to carry troops into Northern Manchuria. It is true that she is pledged not to increase her forces in that region beyond a certain point, and it is also true that, did she so increase them, Russia would have legitimate ground for complaint. But that scarcely diminishes the value of such an important auxiliary line of communications as the Fusan-Mukden railway will furnish. There is no reason whatever to suspect Japan of ambitious designs in Northern Manchuria. If there is ever to be a war of revenge, the incentive will not come from Japan's side. But the best way to avert such a catastrophe is to be amply provided against it.

## **OBITUARY**

Mr. John Stephen, manager of the Singapore Slipway and Engineering Company, and one of the leading business men of Singapore, passed away at his residence, Tanjong Rhu, May 9th, from an apoplectic stroke. The funeral took place at Bukit Timah cemetery, Singapore.

Mr. Fred. Wilson, senior member of the firm of Messrs. Fred Wilson & Co. of Manila, passed out at Hampstead, London, England, May 24. Mr. Wilson was one of the oldest foreign residents of the Philippines having a residence in the islands of over 30 years. The stricken ones have the sincere sympathy of many friends in the Philippine capital.

## PACIFIC MAIL HAS POOR YEAR

The preliminary report of the Pacific Mail Steamship Company for the fiscal year ended April 30 shows a decrease of \$885,092 in gross earnings, \$600,807 in net earnings and \$152,481 in final surplus. This unsatisfactory report was generally expected. President E. H.

Harriman says in part:

"The report says that the greater part of the decrease in operations of steamers was the result of a diversion of traffic to other channels during the re-establishment in San Francisco of stores, warehouses, hotel accommodations and other accessories for carrying on an extensive commerce, which were destroyed by the fire of April, 1906. Other influences were the lower rates of ocean tonnage which prevailed during the entire year, and loss of traffic with Central America, owing to the unsettled civil condition in those States. In addition to the interruption of the regular service of the steamers by strikes and the expenses incident thereto, the cost of operating steamers was materially increased by an advance in wages, ranging from 15 to 33 per cent in all departments of the ships and by the greater cost of all materials and supplies used by them, particularly coal."

The income account for the year shows the

following.

Gr. from oper. steam. Rnts. and ageys Subsdes, invints, etc	1907 \$4,659,046 134,757 45,442	1906 \$5,512,917 168,363 43,057	Decrease. \$853,871 33,606 *2,385
Total Steamer expenses in-	\$1,879,245	\$5,724,337	\$885,092
Agency expenses Insurance Gen. & Miscel. exps.	3,496,125 568,973 125,867 103,584	4,102,207 508,414 128,252 156,483	606,082 *60,559 2,385 52,899
Total	\$1,294,549	\$4,895,356	\$600,807
Surplus Exps. SS. disast'rs San Fran. fire loss Dep'n., reprs., etc	\$544,696 16,412 397,880	\$829,981 148,547 397,549	\$284,285 *.6,412 148,547 *331
Total ded'ns	\$414,292	\$546,096	\$131,804
Final surplus	\$130,404	\$282,885	\$152,481

Increase.

The fund for depreciation at the close of the year had a credit of \$1,725,934. The indebtedness to the Southern Pacific Company, incurred partly in paying for the steamships Korea and Siberia, costing \$3,974,764, was discharged during the year, and the company has no other debts than those for current expenses, which amount to \$269,565. Against this indebtedness the company had on hand in New York, San Francisco and London on April 30 last cash amounting to \$343,328 and other current cash assets amounting to \$319,510.

Henry W. De Forest and Robert Goelet have been elected directors. They take the place of James Speyer and George J. Gould, who resigned from the board some time ago. The other directors were re-elected.

## NEW AUSTRALIAN LOAN

It is stated that arrangements have practically been concluded between the Commonwealth Government and the South Australian Ministry, subject to the consent of the respective parliaments, by which South Australia will raise in the London market a loan guaranteed and ultimately to be taken over by the Commonwealth for the purpose of constructing a railway across Australia from north to south, which, in turn, will be connected with Western Australia on the west, and Queensland and Victoria on the east. The total cost is estimated at \$50,000,000.

It is said that one of the immediate effects on London will be that Australian mails will probably go by way of Port Arthur to Port Darwin in North Australia, saving about ten

days between London and Adelaide

## LESSONS IN ESPERANTO

(The growing interest in the study of Esperanto in all parts of the world indicates that it has come to stay. At the earnest request of a large number of Esperantists throughout the Far East the FAR EASTERN REVIEW will publish, beginning with this edition, a series of lessons in this modern international language which, when completed, will give the student a comprehensive and practical knowledge of the idiom of this new means of intercourse.) For more elaborated definition we recommend the student Grammar and Commentary of the International Language Esperanto by General George Cox, BA, price 2s. 6d. post free 2s. 9d. (British Esperanto Association, 13 Arundel St., Strand.)

## LESSON I

## THE ALPHABET

## abcĉdef ggĥij jk 1 m n oprsstuuvz

All the letters are pronounced as in the English language, with the exception of the following:

as	in		as	in		as	in
a 'a'	father	ĝ	'g'	gtin	0	'oa'	boat
c 'ts'	Tsar	ĥ	'ch'	loch	S	·s'	see
ĉ 'ch'	church	i	'ee'	seen	S	'sh'	shall
e 'a'	care	i	'y'	yes	u	'u'	rule
g 'g'	good	ĵ	53	pleasure	au	'ow'	cow

Every word is to be read as it is written. The accent always falls on the last syllable but one:-"'vojo," "kantado," "interparolo."

The letters u (corresponding to the English w) and j are consonants; au, eu, aj, ej, oj and ul are therefore monosyllables. One has to pronounce therefore ankau and not ankau, bonaj and not bonaj, clui and not ciuj, &c.

#### GRAMMATICAL TERMINATIONS AND CHARACTERISTICS.

By adding one of these letters to the root word, substantives, adjectives and adverbs are formed.

There is no indefinite and only one definite article la for all genders, numbers and cases. Substantives are formed with o, adjectives, with a, and adverbs with e.

La patr'o, the father, patr'a, paternal, milit'o, war. milit'a, military. la felic'o, the hap. piness, felic'a, happy, felic'e, happily, bon'a good, bon'e, well.

Compound words are formed by simple junction of the roots (the defining or qualifying word always standing first), and are written as a single word.

For the sake of euphony the grammatical endings of the defining word, o, a, and e may be inserted.

La vapor'sip'o, the steamship. la ter'pom'o, the potato. akv'o'fal'o, waterfall. nokt'o'mez'o, midnight. gust'a'temp'e, at the right timesen'pag'e, gratuitously.

The so-called foreign words, which the greater number of languages have taken from the same source and which therefore are already internationally understood and used,, undergo no change in Esperanto, beyond conforming to its system of orthography.

Ortografi'o orthography, ortografi'a orthographic. teatr'o, theatre. teatr'a (not teatrical'a), theatrical.

The plural is formed by adding the letter to the termination of the noun (o) or adjective (a). Adjectives agree with their nouns as regards number and case.

La patro'j. the jathers. bona'j domo'j, good

houses.

There are only two cases in Esperanto, the non-inflecetd one or the nominative and the

inflected one or the accusative, which is formed by adding the letter n to the nominative, singular or plural.

La filo amas sia'n patro'n, the son loves his father. mi vidas arboj'n, I see trees.

Every preposition in the international language (except je) has a definite fixed meaning. All prepositions govern the nominative case. The possessive is formed by the preposition de. De la patro, of the father, the father's. al la

patro, to the father. kun la patro, with the father, por la patroj, for the fathers. If it be necessary to employ some preposition

and it is not quite evident from the sense, which it should be, the preposition je is used, which has no definite meaning. If ambiguity is not to be feared, we may use instead of je the accusative without a preposition.

Ridi je la kantado, to laugh at the singing. sopiro je la patrujo, longing for one's fatherland, je la tria tago or la trian tagon, on the third day.

In phrases answering the question where? meaning direction) the word indicating the direction takes the accusative termination n.

Kie? where? kie'n vi iras? where are you going? hejm'e, at home. hejme'n, home. Iri Parizo'n, to go to Paris. la birdo flugis en la cambro'n, the bird flew into the room. gi flugas en la cambro, it flies in the room (it is in the room and flies there).

The comparative degree is formed by pli, more, and the superlative by plej, most. The word than is rendered by of. Pli blanka ol nego, whiter than snow. la plej alta monto, the highest mountain.

The personal pronouns are:

Mi I, me, ci thou, thee, Il he, him, ŝi she, her, gi it, ni we, us, vi you (sing. & plural), ili they, them, si himself, herself, itself, themselves, oneself (reflex), oni one, people, they (the French "on").

The personal pronouns in the objective case also take the accusatival n, and by adding the adjectival a, they are turned into possessive pronouns, obeying the rules for adjectives.

Mia my, mine. via your, yours. sia her, hers. gia its. min me (obj.) iliajn patrojn, their fathers (obj.) liaj libroj, his books.

#### it. ot. ant. int. ont.

By means of these 12 grammatical terminations and characteristics and the auxiliary verb esti we are able to render all voices, moods and tenses of the conjugation.

The verb never changes its form as regards number and person.

The first three terminations, as, i, os serve to indicate the three fundamental tenses:

> Present—mi skrib'as, I write Past-mi skrib'is, I wrote Future—mi skrib'os, I shall write

The next three, us, u, i help to form the conditional, imperative and infinite moods: Conditional—mi skribu's, I should write

Imperative—skrib'u, write Infinitive—skrib'i, to write

By adding the personal pronoun to the imperative one expresses wish, intention or will: (ke) li skrib'u, let him write, that he may

write, ni skrib'u, let us write The characteristics ant, int, ont, form the active participles:

Present—skrib'ant'a, writing Past-skrib'in'ta, having written Future—skrib'ont'a, about to write

By adding the grammatical terminations o, a they become substantives and adjectives, and by adding e they obtain an adverbial character:

La leganto, the reader. la pasinta nokto, the past night. instruante ni lernas, in teaching we learn.

The passive participles are formed by the characteristics, at, it, ot:

Present—am'at'a, being loved Past—am'it'a, having been loved Future—am'ot'a, about to be loved These also can be turned into substantives,

adjectives and adverbs:

La amato, amatino, the sweetheart. kuiritaj terpomoj, boiled potatoes. li revenis el la batalo vundite, having been wounded, he returned from the battle.

By the help of the auxiliary esti the com-

pound tenses are formed.

vi estas petata, you are requested (singular) (literally: you—are—being requested). ni estos skribintaj, we shall have written (literally:we-shall be-having written). si estus laboranta, she would be working li eslis dormonta, he was about to sleep

(literally: I—am—having been loved). be blessed estu benata,

mi estas amita, I have been loved

## PREFIXES.

bo- denotes relation by marriage; patro, father. bopatro, father-in-law. frato, brother. bofrato, brother-in-law.

dis- denotes separation (as in English): jeti, to throw. disjeti, to throw about. semi, to sow. dissemi, to disseminate.

ek- denotes beginning and momentary action. brili, to shine. ekbrili, to flash. kanti, to sing. ekkanti, to start singing.

ge- denotes persons of both sexes, taken together; mastro, master. gemastroj, master and mistress. onklo, uncle. geonkloj, uncle and aunt.

mal-denotes opposite ideas. rica, rich. malrica, poor. fermi, to shut. malfermi, to open.

re- denotes return and repetition. veni, to come reveni, to come back. brili, to shine, rebrili, to reflect.

(Continued.)

## A NEW OIL ENGINE BY E. E. ALLEN, M. E.

There is now being built at San Nicolas Iron Works, Manila, a new oil engine of two cylinders for gasoline, kerosene or alcohol motor. These engines will be built in anything from one to six cylinders, according to their use either stationary or marine purposes. There are several features which are improvements over the old oil engines. One is the particular attention given to a positive and automatic lubricator. All moving parts will be constantly flooded with oil and it will be impossible to get a surplus of oil into the combustion end of the cylinder so that there is absolutely no danger of clogging the piston with burnt lubricating oils. This will assure much economy in fuel.

## EXPORT OF SIBERIAN BUTTER

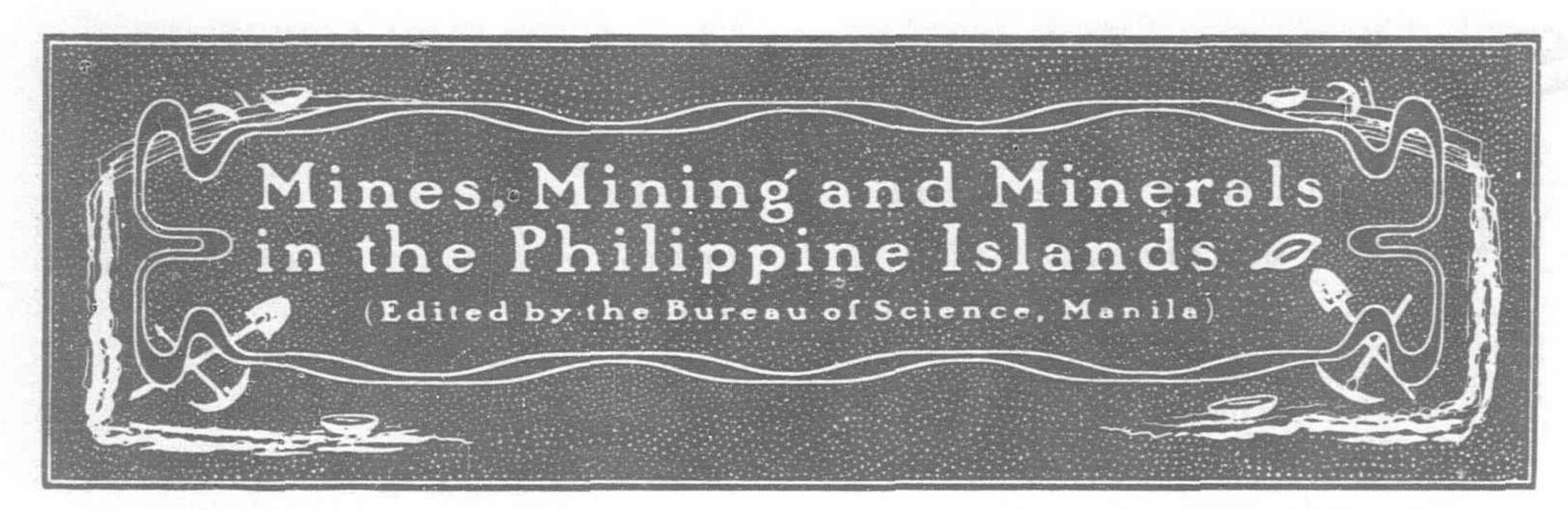
According to Consul Samuel Smith, of Moscow, the Department of Railways publishes the following data respecting the quantities of butter, in tons, shipped via the Siberian Railway into European Russia for the last hve years: 1902, 31,131; 1903, 36,123; 1904, 34,803; 1905, 31,258; 1906, 46,738.

## ASIATIC NOTES

A new coal mine is said to have been discovered by the Russians on the Eastern Manchurian Railway to the east of Harbin station, and steps are being taken to form a company to work it.

The formation is announced of a new Belgian company, the primary object of which is the establishment of an up-to-date automobile garage in Bangkok, Siam. The company has a capital of more than 1,000,000 ticals (current value of silver tical, 30 cents).

Owing to the establishment of a vast number of progressive schools in Canton, the demand for leather in making shoes and boots for the students is exceedingly great. The Viceroy proposes to appropriate an official fund of several hundred thousand dollars, and establish a factory for tanning hides.



## CAMARINES GOLD FIELDS

The Paracale Gold Dredging Co., Ltd., incorporated at Dunedin, New Zealand, for the purpose of dredging for gold on the Paracale river, brought from New Zealand in January of this year the machinery for a modern gold dredge. It had been used for a short time on a dredge in that country, which had proved unsuccessful, through no fault of the machinery, however. It consists mainly of a 70 horsepower boiler; a horizontal English engine of 60 horsepower; one six barrel winch; a digging ladder 62 ft. in length; a revolving screen; thirty-seven digging buckets of 4½ cu. ft. capacity each; a centrifugal circulation pump; and the many accessory pieces of machinery such as shafts, pulleys, belts, band wheels, etc., which to go to make a complete dredge. The pontoon is built of Oregon pine bought in Manila, and is 114 ft. long, 30 ft. wide 5 ft. 6 ins. deep at the bow, and 9 ft. deep at the stern. The great depth at the stern is required more particularly to support two sluice concentrators 80 ft. long, 6 ft. wide and 2 ft. 6 ins. deep, which will project fully 30 ft. back over the stern of the boat, and were designed to save the valuable black sand as well as the gold found in the gravel. They are to be lined with coco matting and expanded metal riffles. The capacity of the dredge is stated by officials of the company to be 2,000 yards per day, the speed of the buckets being 13 per minute.

The district of Paracale and Mambulao has been the scene of great activity in the mining industry in the past but it was disappointing to find almost all of the old workings inaccessible either on account of cavings or accumulated water. The work under Americant direction has hardly commenced except on the placer ground.

At Paracale the topography for about four miles inland consists of low hills, ridges, and flat land, all heavily wooded and covered with a dense undergrowth of vines, tree-ferns and palms well armed with spines and hooks. There are a few trails, however, and the Malaguit and Paracale rivers furnish a convenient means of transportation to a portion of the district.

Beyond the low flat land Mt. Bagacay rises abruptly to an altitude of 3,000 ft., as given by aneroid barometer, while May Cruz mountain near Mambulao is a little more than 1,000 ft. high as indicated by aneroid.

Mambulao bay is well sheltered and is navigable for large vessels. At present there are no docks or piers to facilitate the handling of cargo and it is very seldom that a steamer calls at this port.

The mineralized zone embraces a territory of at least fifty square miles, a district about five miles wide by ten miles long, beginning about 1½ miles east of Malaguit and extending a mile west of Mambulao, and from Mt. Bagacay and Lauzon creek northward to the sea. Ores occur over a much larger district but this includes the principal workings, both past and present.

## GENERAL GEOLOGY.

A detailed study of the geology was not undertaken, but in a general way the mineralized district may be said to consist of hornblende diorite, schist and gneiss.

Bagacay range, which limits the district on the south, is composed of a diorite porphyry containing hornblende phenocrysts, and has a general trend of S. 85° W. There are also some intrusions of a dark colored igneous rock between Paracale and Mambulao.

The district of Dilinquente and Calabornay comprising the low area east of the Malaguit river appears to be formed of a light colored hornblende diorite, although it was impossible

to obtain samples of the rock in places that were not much altered by weathering.

Dinaanan ridge consists of a light colored schist on the Malaguit side and gneiss on the Paracale or northwest side; the contact between these two metamorphic rocks strikes northeast and southwest, which is the general strike of most of the quartz veins in this district.

Between Paracale and Mambulao the great mass of the rock is gneiss although there are in this area numerous intrusions of a dark colored igneous rock, and about four miles west of Paracale there is exposed on the beach a dark hard metamorphic rock of fine texture.

Some two miles west of Paracale the trail leads over low hills which are covered with crusts and nodules of hematite and magnetite overlying or mixed with red clay formed by the weathering of an igneous rock rich in iron.

At Lauzon, creek, Tumbaga, and the head-waters of the Malaguit river, a rock having the appearance of slate is found. A careful microscopic examination of the Lauzon rock made by the the Chief of the Division of Mines proved it to be a schist. Probably the others are also metamorphic igneous rock.

It will readily be observed that this district has been the scene of extensive dynamic action since the first rocks were formed. The action which brought about the metamorphism of the older rocks to the present gneiss and schist, possibly from diorite such as still exists in part of the territory, the intrusion of dykes of igneous rock, and the elevation of the igneous mass of Mt. Bagacay produced a shattered condition of the rock masses favorable to the circulation of mineral waters and the formation of ore bearing veins.

A knowledge of the exact relation of these different movements to one another and the influence of each on the formation of the ore deposists would be of great value to engineers and miners in their efforts to develop this district. It is to be hoped that an accurate map may be made in the near future and a study of the geology in detail undertaken as soon as the old workings in the district have been opened up and new work commenced.

## DINAANAN RIDGE.

There are at least five important lodes on this hill all of which strike northeast and southwest and dip vertically, or very steeply inclined to the southeast. On the old San Antonio claim, now the San Francisco, a depth of 120 ft. was attained. The main lode is approximately six feet wide and lies between schist on the Malaguit and gneiss on the Paracale side. The ore in the vein is refractory, being mostly pyrites in quartz. Its value is unknown and cannot be determined until a tunnel, which is now caved at the mouth and which formerly connected with the bottom of a shaft 120 ft. deep, has been opened.

A smaller lode, 18 in. to 2 ft. in width, which lies a few feet to the northwest of the main lode, is reported to Filipinos who formerly worked in the mine to be rich in free gold.

Chromate of lead is known to occur in the San Antonio veins but the workings are not accessible at the present time.

The old Baluarte claim, now called the California, adjoins the San Antonio on the northwest. Ore from this claim was treated in a steam arrastra situate a few hundred yards up the Paracale river and is reported to have milled 1½ ozs. per ton. The ore contains pyrites in abundance but several specimens of free gold were observed in the ore lying about the collar of an old shaft 21 ft. deep. The lode is approximately vertical, strikes northeast and south-

west, and consists of 5 to 8 feet of dense tough quartz which crushes well but is not very easy to mine.

Lying on the right bank of the Paracale river this lode is advantageously located in many respects. The greatest difficulty to be expected is a considerable flow of water, as the vein does not rise more than a few feet above sea level.

A ten stamp mill on Longos Pt. and an arrastra plant on the right bank of Paracale River were erected in 1896 by the Philippines Mineral Syndicate to treat the ores from Dinaanan ridge. The arrastras also extracted the gold from the concentrates from a small dredge operated by the same company on the waters of the Paracale river. This was the first power dredge erected in the Philippines for mining purposes.

All the lodes on the Dinaanan ridge carry pyrites in large amounts and it may seem strange that the natives could obtain any considerable amount of gold from such an ore. The old miners, however, say that in nearly all of these lodes there is a small streak of ore very rich in free gold. Usually it is not more than two or three inches wide and varies in position in the vein, but it was from these rich stringers in the vein of low grade ore that much of the gold was taken. A particular form of soft fine pyrites was also known to be rich in gold and this was ground by hand between two flat stones and then washed in bateas, or fabirics, as the wooden washing pans are called by natives of the Camarines.

The San Mauricio group of claims lies on the western slope of May Cruz mountain and not more than three quarters of a mile from the town of Mambulao. A large amount of development work was performed on this group and engineers have reported the ore in sight to be about 12,000 tons of an average value of ten to fifteen dollars gold per ton. Part of the value can be saved by amalgamation and most of the remainder by concentration. It is estimated that the ore would concentrate about ten tons into one and that the concentrates would assay \$70.00 per ton. The heavy minerals are pyrite, chalcopyrite, sphalerite and galena.

The Tumbaga group of six claims lies some three miles south of the town of Mambulao. Tumbaga hill apparently is composed mainly of a decomposed andesite but there is a rock having the appearance of slate associated with the Tumbaga vein. The Spanish Inspectores de Minas who had access to the workings reported the ore as occuring in a slate formation, but that it is true slate seems doubtful.

The vein is nearly vertical and strikes approximately north and south. As exhibited on the old dumps the ore is quartz and calcite containing pyrite, chalcopyrite, pyrrhotite, sphalerite and galena. Probably the ore which was formerly mined, crushed, and panned for free gold by the natives was of an entirely different character.

The mineral Tumbaga, a natural alloy of copper and zinc, samples of which have been brought to the Bureau at various times, is said to occur in a tunnel near the northern end of the Tumbaga group, as well as at three other places on Tumbaga hill. The mineral is found on one side of an auriferous quartz vein in a gangue of soft white material. There is no reason to doubt that this remarkable mineral occurs in the manner stated but it was impossible to verify the statement by actual observation since all the tunnels were caved. It is to be hoped that the end of this year will see many of these old workings opened up and new work progressing.

The gold bearing ores of the Paracale-Mambulao district are all of the same general type; namely, quartz containing a large amount of heavy sulphides. The ores appear to be less refractory than would naturally be expected from the amount of sulphides they contain, and the former method of treatment was to crush, amalgamate, and concentrate the tailings and ship the product to Europe or America.

Since the machinery of the Syndicate was installed, the cyanide process of gold extraction has made rapid progress and it is probable that at least some of the ores of the district will be found to be adapted to this treatment.

It is believed, however, that many of the sulphide ores, and particularly the more complex ones, will be smelted on the ground in reverberatory furnaces, possibly after having undergone a process of concentration. With copper ore available to form a copper matte to act as a collector of gold and silver, with an abundance of wood fuel, a satisfactory amount of available water, coral limestone for fluxing, and a supply of cheap labor, there would seem to be no reason why a process of roasting and reverberatory smelting should not be a success. Neither the cost of installation nor the expense of treatment should be excessive. We can perhaps safely assume that the richest of the surface deposits have been extracted by Filipinos and Spaniards in former days, but in all probability these constituted a very small fraction of the valuable mineral wealth and there is little doubt that scientific mining with modern methods, adequate capital, and careful direction will bring large returns to those who take advantage of the opportunities here afforded

Natural conditions are in a large measure favorable to the development of the district. Transportation by steamer can be had to within a few miles of any of the properties making the installation of machinery a simple matter. Wood for fuel is abundant throughout the territory and costs \$\mathbb{P}\_{3.50}\$ to \$\mathbb{P}\_{4.00}\$ delivered. Labor in the immediate vicinity is neither very scarce nor extremely plentiful but any number of workmen can be brought from other parts of the Province to work for a daily wage of P.80 to Pr.00. The climate is healthful and the

people are peaceably inclined.

#### PLACER MINING,

Most of the Paracale and Malaguit rivers and the low land on both banks has been located as placer ground. The gravel beds are evidently of recent origin, lying under or near the present water courses and in no case very far above tide water. There are no high banks. Evidently this coastal region has been sinking slowly in its last geologic period.

The gravel in the Paracale and Malaguit placers is composed largely of quartz pebbles and sand, although the metamorphic and igneous rocks of the region are also represented and limestone and volcanic glass have been found in

the Paracale beds.

This gravel was tested by Mr. Fearby, an engineer who was sent from New Zealand to report on the property; the Americans owning the ground having guaranteed the gravel to carry at least 25 cts. gold per cubic yard.

The gravel deposits rest upon a soft decomposed gneiss or diorite which makes an ideal bottom for the recovery of gold. They seldom exceed 30 ft. in thickness and as the dredge can work to a depth of over forty feet there should be no difficulty about cleaning up the values on the bottom. There are no large boulders and sunken logs are reported to be very few.

Mangrove swamps and low grassy ground form the low banks of the river. As it has but a small watershed the stream would not appear to be subject to disastrous floods, while there is an abundance of water for dredging purposes.

Mr. A. J. MacDonald began testing the Malaguit river with a Pierce testing machine last April, but the results of his work have not yet

been announced.

The land on both banks of the Malaguit is a low mangle swamp which on first consideration would hardly be taken for dredging ground. Much of the land, however, is believed to be composed mainly of gold bearing gravel. The trees could be removed and used for fuel, and while the tangle of roots might retard the rapid operation of the dredge, it is not believed that they would prove to be an insurmountable difficulty by any means. A more serious obstacle is the presence of large boulders in some of the gravel beds along the headwaters of the river. Whether or not these boulders would prevent dredging operations will not be known until the ground has been carefully tested and the value of the gravel determined.

The rise and fall of the tide along this coast is at least 5 ft. and sometimes more. While annoying, this is not a serious obstacle to dredging.

As far back as the history of this region is recorded the natives have been washing gold from these stream beds, and they even carry material from the higher ground down to the river banks and wash it there when the tide comes in.

Concentrates from the Malaguit river examined in the office were found to contain a number of clear Zircon and Topaz crystals. All of them were small, being about 1-16 in. in diameter, but an examination on the ground would possibly result in the discovery of stones of value. Zircon and Topaz are both cut for gems but the demand for them is not great.

With proof so near at hand it is perhaps idle to speculate regarding the value of the gravel deposits. The results obtained by the dredge soon to begin operations will be eagerly awaited and if encouraging, as now seems probable, a great impetus will be given to mining in the Camarines.

There is room for a number of dredges on the placer ground along the Paracale and Malaguit rivers alone, but naturally nothing more than testing will be done until the results of the operation of the Paracale dredge are known.

H. M. ICKIS.

## PERSONALS

Ben Lehr, who is largely interested in the Colorado Mining Co., returned recently from Masbate where he spent four weeks looking over different mining properties. He brought with him, on his return to Manila, a fifty-ounce gold brick which is the second shipment from the new ten stamp mill of the Gold Bug Mining

J. Walter Gallagher, an old time prospector and miner, is at present in town preparing for another trip into the bosque.

The stockholders and employees of the Philippine Mining Co. are anxiously awaiting the outcome of a suit which has been brought against the company. In the meantime the claims and other property of the company are in the hands of a receiver and all operations with the dredge have ceased.

Captain Charles Nathorst has just arrived in Manila from Lepanto-Bontoc en route to the United States via Europe. He brought with him a small bar of gold, the product of the Suyoc gold mines, Lepanto.

William Kane, who is to take over the management of the Paracale Gold Dredging Co., arrived on July 11 and sailed on July 15 for the Camarines

Jerome Mayland, having completed his work on the Paracale dredge, has gone to Surigao on a prospecting trip.

#### OBITUARY

We regret to record the passing of another old prospector from the Philippine "bosque" and mining circles. The deceased, Mr. C. F. Bergen, was a familiar figure in Mindoro, Batangas and Cebu for a long time and death overtook him in the last named place, where he had been struggling with the tropical wilds and the dread enemy of the mining man, dysentery.

CURRENT NEW YORK WHOLESALE PRICES OF METALS, MINERALS, CHEMICALS, ETC. Selected from the Engineering and Mining Journal

Bort good drill qualityesrat
Carborundum, grainslb
Corundum
Corundum
Pumice Stone, American powder-
ed100 lbs
Acids.—
Hydrochlorie 20°lb
Nitrie, 38°
Sulphuric, 660 bulk ton
Aluminum, 99%lb
Antimony, needle
Arsenic, white
Asbestos,—
No. 1, crude sh, ton
No. 1, crudesh. ton Fiber No. 2, paper stock"
ASPHALTUM
Trinidadton
California
Bleaching powder, 35%100 lb
Blue Vitriol "
Bone Ashlb
Borax
*Caps detonatingM
der- bs lb on lb

CEMENT	
Portland, American 500 lbs. bbl	1.55-1 60
Foreign	2.25-2.90
Rosendale300 " "	. 85
*Green Island375 lb. bbl	2.50
*Alsen	2.621
CLAY, CHINA	
American common lg. ton	9.00-12.00
Foreign	11.50-17.50
Copperlb	.2325
*Dynamite 40%	. 221
Feldspar ground best sh. ton	7.00-15.00
Fire brick AmericanM	30.00-40.00
Imported "	26.00-45.00
Fire clay, St. Louis Mill ton	2.50
*Fuse-Blasting 1,000 ft	5.00
Graphite-American ore, common_lb	.01-10
Artificial lb	.06
Gypsum-Fertilizer sh. ton	7.00
Powdered sh, ton	10,00
Leadlb	.06
Magnesite-Greece, crude, 95%.lg. ton	7.00-8 00
Bricks, domesper M	160-200
Manganese, pure, 98-99%	.75
Ore, 80-85%sh. ton	35.00-45.00
Mercury, export flask	37.00-37.50
PAINTS AND CCLORS	
Litharge American P'w'dlb	.071071
Ochre, Am. Comsh. ton	8.50-9.00
Paris Green, pure, bulklb	.26
Turpentine, spirits, bblgal	. 64 65
White lead, Am. drylb	.06%07
Zinc, white, Am. extra dry	.071071
Zinc, white, Am. extra dry"	.05%05½
Phosphates, Acid per unit	.65671
Florida hard rock lg. ton	7.50
Land pebble 68% "	4.50
Potassium Cyanide (98-99%)lb	.1819
Platinum oz	The state of the s
*Powder, black blasting Alb	.15
*Judson Pyrite, Domestic Non-arsenical,	.13½
lumpunit	.1111½
Imported non-arsenical lump "	.13132
Imported, arsenical " " " Saltpeter crude 100 lbs	. 1212½
Saltpeter crude	3.75-4.00
Silica, Lump quartz	2.50-4.00
Ground quartz, ordinary " Glass sand, ordinary "	13.00-15.00
Silveroz	2.75
Sodium cyanide (100% KCN)lb	.1819
*Steel, octagon drill	.10 .18
Sulphur, Louisiana primelg. ton	22.123
Roll	1.85-2.15
Flowers sublimed "	2.20-2.60
Tale—Domestic sh. ton	15.00-25.00
Italian, best	35.00-40.00
Tin lb	.413
Zinc, metallic ch. pure "	.15
Dust "	.057061
*Manila quotation.	

## PROMOTING PHILIPPINES INTERESTS

The Manila Merchants' Association has been formed for the purpose of advertising the islands in America and Europe. It is comprised of the leading business men of the Philippine capital and is receiving remarkable support. In one day over \$35,000 were subscribed by the merchants to pay for the publicity campaign. In all over \$60,000 have been secured. The publicity committee is busy spreading pamphlets broadcast throughout the world giving information on the prospects for investment in the islands besides refuting false and misleading statements appearing from time to time in the foreign press. This work is being gradually extended and a data gathering campaign has been inaugurated. The following is a list of the officers and committees appointed:

DIRECTORS.—President: M. A. Clarke, 2 Escolta; First Vice-President: Clemente Schwinges, La Concha Button Factory; Second Vice-President: J. A. H. Hamilton, Smith, Bell & Co.; Third Vice-President: José Garchitorena, Garchitorena Carriage Works; Fourth Vice-President: Emmanuel Ullmann, Felix Ullmann & Co.; Treasurer: Simon Erlanger, Erlanger & Galinger; Secretary: Chauncey M'Gov-

ern, The Escolta Press, 130 Escolta.

WITHOUT OFFICE.-I. Beck, American Bazaar; John Gibson, Gibson's Saw-mills; Milton Springer, American Hardware Co.; A. K. Sprungli, Sprungli & Co.; A. K. LaMotte, Calle Palacio and Real, Intramuros; William Gitt, The Bargain Store; Carl Hess, 68 Calle Bustos; E. E. Elser, McCullough & Co.; D. Earnshaw, M. Earnshaw & Co.; Walter E. Olsen, E, Olsen & Co.; Arthur C. Cohn, The Nobby; E. J. Smith, The E. J. Smith Co.; Alfredo Roensch, Roensch & Co.; Fernando Zobel, 100 Escolta.

COMMITTEES. — Legislative Committee: Messrs. Erlanger, Springer, Gibson, Garchitorena, LaMotte; Promotion Committee: Messrs. Gitt, Cohn, Olsen, Schwinges, Hamilton; Membership Committee: Messrs, Schwinges, Zobel, Hamilton, Preuser and Ullmann; Hotel Committee: Messrs. Olsen, Hess and Elser.

## FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

#### ELECTRIC RAILWAYS, LIGHTING, POWER, ETC.

PROPOSED WIRELESS TELEGRAPHY IN MONGOLIA.—
The Board of Communications is contemplating the introduction of wireless telegraphy into Inner and Outer Mongolia.

YAMANOTE TRAMWAYS.—The Government Railway authorities of Japan intend to run electric trams between Shimbashi and Shinjuku on the Yamanote line at an early date.

Shi gu Electric Railway.—Shingu Electric Railway in Wakayama prefecture has been sanctioned by the authorities. The lines covers 10 miles 68 chains, from Shingu to Katsu-ura.

Proposed Tokio-Kobe Electric Railway.—The petition for permission to construct an electric railway between Tokyo and Kobe, promoted by Mr. K. Suzuki and twenty-six other persons, was rejected under date of April 15.

Sumoto-Fukuyamaka Electric Railway.—Official charter was given under date of May 11 to construct an electric railway between Sumoto and Fukuyama on Amaji island, a distance of about 15 miles. The capital of the company is 2,000,000 yen.

TEIKOKU UNYU AUTOMOBILE Co.—The Teikoku Unyu Automobile Company has decided to decrease the capital of 5,0000 000 yen to 1,500,000 yen. One third will be supplied by foreigners. Notice of the payment of the first call on the shares will be issued shortly.

Yokohama Electric Extensions.—Official charter was given on May 30 to the Yokohama Electric Railway Company to construct a new electric line from Minami-Yoshidamachi at Yokohama to Komachi at Kamakura, via Ookaga, Hino, Yamanouchi and Yukinoshita.

Tokyo Tramway Extension.—The Tokyo Tramway Co. has been granted licenses for the construction of various lines connecting with the Uyeno Oji line, and also of a line between Tokyo and Narita-a distance of 36 miles—which will be built at a cost of two million yen.

TELEGRAPH LINE IN MANCHURIA. - The Acting Governor of Hehlungkiang, Chen Teh-chuan has reported to the Waiwupu that the Russian authorities have proposed to sell the telegraph line along the rail-ways in the provinces of Hehlungkiang and Kirin extending over three thousand Chinese li.

Russo-Chinese Telegraph agreement has been signed. By his agreement the Military lines are to be restored to China at a cost of about 160,000 dollars, and the lines along the River Sungari are restored without any compensation or privileges being demanded.

Japanese Telegraphs.—The communications department proposes to construct a special telegraph line between Japan and Korea. The expense will be entered in the Budget for the 41st fiscal year. Hitherto, the Great Northern Telegraph Company's lines were used in the service, and consequent telegraph fees were not so cheap as in Japan.

Tientsin Tramway Extension.—The agreement between the Tientsin City Electric Tramway and Lighting Co., Ltd., and the Japanese Municipal authorities for the extension of the Tramway system through the Japanese concession has been signed and the work of laying the lines—started some time ago—will be proceeded with at once.

The Tientsin Tramways. -Mr. Kato, retiring Japanese Consul-General at Tientsin, and Mr. Gregoire, Director of the Tientsin Electric Tramway Company, signed an agreement concerning the extension of the Company's tramway to the Japanese Concession at this Northern Treaty Port on the 24th instant. By this concession the system will be connected by the shortest route with the Native City and the French and other foreign Settlements. The constructional works will be commenced as soon as materials are ready in the not distant future, so that the useful extension may be completed for traffic as soon as possible.

Government is favorably disposed to the petition of the Yokohama Electric Railway Company for permission to construct an electric railway to Kamakura and Kanazawa. The Company decided at an extraordinary general meeting of shareholders held in February this year to increase the present capital of 1,000,000 yen to 10,000,000 yen, but owing to the present unfavorable economic conditions, the company held an extraordinary general meeting on June 5 canceling the previous resolution, and will introduce a new bill to increase the capital by 2,000,000 yen, thus making the total capital 3,000,000 yen.

British Get Japanese Tramway Contract.—The "Tramway and Railway World" announces that the first contract for tramway permanent way for Japan, which has been placed in Enland, has just been secured by Messrs. Edgar Allen and Co., of Sheffield. Hitherto. orders of this kind for Japan have been placed with American firms, but in the present case, after keen competition, the British firm was successful. The contract provides for the supply and construction of the whole of the special track work, lay-outs, cross-over, etc., required for the tramways to be constructed in Osaka.

Yokohama Tramway Extension.—The following new lines of the Yokohama Electric Tramway Co. received formal sanction by the authorities under date of May 22nd.

Coast lines (15 miles 28 chains): From Ryuto-Hachimanbashi near Negishi to Kamakura via Isogot Mori, Morinakahara, Sugita, Tomioka, Kanasawa, Susaki and Sambu. From Sambu to Zushi. Inland, line (10 miles 30 chains) from Yoshidamachi to Kamakura railway station along the O-okagawa and Kamakura street via Koden, Yamase, Ofuna. Yamanouchi and Yukinoshita.

The company is also considering a plan to construct a new city line from Surugabashi over the Minami-Yoshidagawa to Ryuto-Hachimanbashi, connecting with the coast line.

Tokio Electric Lighting.—The Tokio Railway Company has applied to the city office for permission to engage in electric lighting business in the city in general. At present the company is supplying electric light to Akasaka, Azabu and neighborhood, having succeeded to the right to do so originally possessed by the Tokyo Electric Railway Company. The company hopes to supply the light at a fee lower by 40 per cent than ordinary rates. It will pay a royalty to the city amounting to one-sixth of the balance of the net profit after deducting 6 per cent dividend on its capital. An extraordinary general meeting of the Tokyo Electric Light Company approved the proposal to amalgamate the Tokyo Electric Power Company with the Light Company. A meeting of shareholders of the Power Company approved the amalgamation proposal.

THE SHANGHAI TRAMWAYS .- For the purpose of protecting Chinese interests, the Customs Taotai of Shanghai, Jui Cheng, has been instructed by the Vicerov to consult the native gentry and others in regard to the construction of tramways in the Chinese quarters in the vicinity of the foreign concessions with only Chinese money, to prevent foreign interference in future in view of the existing disputes between the Chinese authorities and the British and French companies which hold the tramway concessions in the international and French Settlements. A wealthy Chinese merchant at Hongkong by name of Wen had recently applied to H. E. Tuan for permission to build the proposed tramway at Nanking and Shanghai with a capital of \$1,000,000 of Chinese money; but his application was refused on the ground that the former will be built with Chinese Government funds, while the latter will be constructed by the native gentry and others of the port without outside assistance, as desired by Taotai Jui.-N. C. D. News.

MUKDEN ELECTRIC TRAMWAY - Consul General W. D Straight, of Mukden, reports as follows: The Japanese military authorities, during the occupation of Mukden, constructed a push-car tramway along the main thoroughfares and from the city to the railway station. Upon their evacuation this property was turned over to the local Japanese Settlement Association, which has intrusted its operation to a Japanese concern called the Okuragumi, and it is between these two that the profits are at present divided. The line is now used almost entirely for hauling materials for the repair of the city streets, which is now in progress, and the passenger traffic is as yet of practically no importance. The Okuragumi, however, plan within the current year to rebuild the road with a broader gauge and install a horse-car service, with the ultimate intention of turning it into an electric line. As it is probable that similar enterprises will be undertaken at other places, there should be a market in the near future for trucks and electric supplies.

## RAILWAYS AND RAILWAY SUPPLIES

RAILWAY DEVELOPMENT IN MANCHURIA.—Japan has placed orders in America to the value of \$12,000,000 for the equipment of the South Manchurian railway. The high prices paid will ensure rapid delivery of the material.

PEKING-HANKOW RAILWAY EXTENSION —A proposal is being considered by the gentry of Shantung for the construction of a branch of the Peking-Hankow Railway from Tsen-tao Station to Chinanfu, a distance of 400 li.

SZECHWAN-HANKOW RAILWAYS-Negotiations are being entered into between the British Syndicate and the Hongkong and Shanghai Banking Corporation for a loan of Taels 15,000,000 for the Szechwan-Hankow railway.

TIENTSIN-CHINGKIANG RAILWAY.—Yuan Shik kai has proposed to arrange a loan with British and German syndicates for the purpose of constructing the Tientsin Chiang Railway.

The Waiwupu seconds the proposition which is being submitted to the Throne for approval.

Indo-Chinese Railways.—Ting Ching-tu, Viceroy of Yunnan, has wired to the government that the French authorities have prepared a fund of sixty million francs for the construction of the railroad from Mengtze to Lao-kai. There are now seventeen Italian engineers engaged for the surveying work of that line which will be completed at the end of next year.

The Peking-Hankow Railway.—According to a telegram from Peking dated May 4, the Chinese Post and Telegraph Department is going to purchase the railway between Peking and Hankow by means of a loan from an Anglo-Chinese syndicate. It is reported that even if the syndicate advance the money, it will not be allowed to interest itself directly in the railway.

Railway for Kuangsi.—The main line of the railway which the Chinese Government intend to build in the Province of Kuangsi is to run from Kwei-hin to Yungfu, Liu Chou, Kwei Hsien, Hsien Yeh, Yu-hin, Popie to Pakhsi. Work on the following sections will be commenced almost immediately: Kwei Hsien-Pakhoi; Kwei Hsien-Lin-Chou, Kwei Hsien-Kwei Lin and Kwei Hsin-Wuchow. The regulations specify against the employment of foreign capital.

Kagi-gai and Arisan Railway.—Messrs. Fujita & Co., Osaka, are constructing a railway between Kagi-gai and Arisan, in order to carry timber from the great mountain forests. The railway is only 50 miles long, but the forest is 5,000 feet above the sea level, and in consequence the rails are being laid at the grade of one in twenty. The capital was originally fixed at four million yen, but it is found the railway alone will cost four millions, and the company has therefore increased the capital by a million yen. The work will be finished in 1909.

Tokio Central Railway Depot.—According to a new plan for the Central Railway Station in Tokio, which was recently submitted to the Railway authorities by Dr. Tatsuno, the station will be three-storeys in height and will occupy a site covering 2,700 tsubo, at a cost of yen 2,500,000. The middle portion of the structure will be reserved for the exclusive use of the Imperial Court, while the right and left wings will be used by the public. On the second floor, there will be a large dining hall, hair dressing saloons, billiards, bath rooms, restaurants, etc. On the third floor, a hotel will be conducted.

Tibet Ropeway Company.—A concern has been formed under the name of The Tibet Ropeway Company, Ltd., for the purpose of carrying goods by means of a wire-rope tramway at a lower cost and much quicker than they can be transported in any other way from India into Tibet. The company's prospectus says that a concession has been secured from the Government of India, and the details given of the estimated expenditure and revenue indicate a return of 20 per cent dividend on the undertaking, even on the basis of present trade, which, with improved and cheaper transport, will be sure to expand almost immediately.

ELEVATED RAILWAYS IN TOKYO .- According to the original programme the year 1909 was the date fixed for the opening of the elevated railway between Shinsenza and Eirakucho, Tokyo, but the date will be postponed a little. The fact is that a change will be introduced into the original plans for the construction of the Central Railway Station at Marunuochi, which will be much larger than was originally proposed. In addition to this, the authorities are also planning the construction of elevated railways which will connect the Sobu, the former Kobu, and the former Nippon railways. The total length will be 2½ miles and the expenditure is estimated at yen 25,000,000, including the purchase price of land, etc. The above estimate will be submitted at the next session of the Imperial Diet for approval.—Japan Advertiser.

THE CHUAN-HAN RAILWAY. - H. E. Viceroy Chang Chih-tung has telegraphed to the Yuchuanpu protesting against the proposed loan of French capital for the construction of the long-talked of Chuan-Hsan or Szechuan-Hankow trunk railway. H. E. Tsên Chun-hsuan, new President of this Ministry, is in favor of building the line from Changtu through Yunnan and Shansi to Honan to connect with the Kaifeng-Loyang or Kaifeng-Chenchon branch line of the Peking-Hankow railway, instead of from Hankow direct to Chengtu as originally suggested by the Viceroy Hsi Liang, late of Szechuan (now Viceroy of the Yun Kuei provinces). As the proposed Chuan-Han railway will be the most important and profitable line in the upper Yangtze provinces, H. E. Chang Chih-tung thinks it should be built with Chinese money without either British or French financial assistance. H. E. has dispatched Taotai Kao Lin-yü of Hupeh here to consult the Peking Government and the President of the Yuchuanpu in person about the question .- N. C. Daily News.

MANCHURIA RAILWAY CONSTRUCTION.—Consul-General Willard D. Straight transmits the following from Mukden:

The Viceroy of the Province of Kirin (Manchuria) reported that he intended in March or April to commence the construction of a railway between Changchun and the city of Kirin, a distance of about 80 miles. The capital to be employed is given as 40,000,000 taels (about \$30,000,000). The sleepers necessary have already been secured and the rails are now in process of construction at Hupeh. The rolling stock is to be purchased abroad. A small part of it is said already to have been ordered through a German firm at Newchwang, and the Viceroy has dispatched a representative to Peking to arrange for the purchase of the remainder.

It is reported in the local press that the Board of Communications at Peking, upon the recommendation of the Imperial High Commissionners, after their tour of investigation through Manchuria, has decided at an early date to begin the construction of a railway from Kaiyuan, a point on the South Manchurian Railway, to the city of Hailungfu, a distance of about 90 miles. It is said that the earnings of the Peking-Tientsin and the Peking-Hankow railways will be used as a part of the capital.

Honam Railway Loan.—The Chinese Government has instructed H. E. Li Sheng-to to borrow another 16,000,000 francs from a Belgian Syndicate for the use of the Honam Railway.

SZECHUEN-HANKOW RAILWAY. - President Tsen Chunhsuen is inclined to alter the route of the Szechuen-Hankow Railway, the new scheme being to enter Szechuen through Shensi Province.

JAPANESE FREIGHT RATES.—The railway department made a freight reduction on June 1 for the conveyance of cocoons, on those lines formerly called Ko-bu and Sanyo as follows:—dried cocoons, 2½ sen per ton mile, raw cocoons, 3 sen per ton mile.

Manila Railway Co.—The traffic receipts of the Manila Railway for the week ending June 18 were \$67,398 against \$35,860 for the corresponding week of 1906, making an aggregate of \$979,919 against \$732,872 for last year.

MANILA RAILWAY COMPANY.—The few outstanding "A" and "B" bonds, and the First Mortgage Registered stock and 6 per cent notes not deposited under the scheme were paid off on June 13, 1907, when interest ceased.

Manila Railway.—The traffic receipts of the Manila Railway for the week ending May 6 were \$50,619 (including extensions, 207 miles open,) against \$45,430 (main line only, 132 miles open) for the corresponding week of 1906; making an aggregate of \$650,109 against \$506,806 for last year.—Mail and Express.

KOBU RAILWAY TRANSFER.—The Kobu Railway has been notified by the Government that the price of the railway in the transfer to the Government has been fixed at 13,665,858 yen. The interest on the sum is 683,272 yen. Each share of the company (110,000 shares) is valued at about 124 yen.

Kansai Railway Company.—Official announcement is made that the nationalization of the Kansai Railway Company, Japan, will take place on October 1. This means that the scheme by which the Japanese Government was to take over the various leading railways during a term of years will be applied to the Kansai Railways on the above-mentioned date.

Kowloon Canton Railway.—Recent heavy rains in one construction of the Kowloon Canton railway, have wrought havoc with the temporary works of the line.

A very gloomy picture of the condition of things prevailing on the section leading to the southern or Kowloon mouth of the tunnel is presented by those who have traversed the route.

The Swatow-Chao-chow Railway.—The railway from Swatow to Chao-chow has just been completed. The distance is 90 li, and the construction has cost 2,500,000, the Chinese in Singapore and other British Settlements being mainly responsible for the funds. At the outset the merchants and gentry of Kwangtung had no confidence in the undertaking and placed every obstacle they could in its way. But this was eventually overcome, although not before several riots had taken place.

Japanese Railway Relief Fund.—The Imperial Railway Department institutes a relief fund for employes of the Government Railways. The employes will contribute 3 per cent. of their wages to the relief fund, from which they are given relief in case of necessity. We are glad that the Government railways have taken the initiative in improving the circumstances of workmen in Japan

Kowloon-Canton Railway.—Work is proceeding fairly well on the Kowloon Railway. in spite of the interference caused by heavy rain. The tunnel in the Shatin is in over 500 feet, but progress is now very slow because absolutely solid granite has been reached, and every inch has to be drilled. The main shaft above the Valley is down for 120 feet—it is being worked by Italians. On the south side very good progress is reported, while bridge and ballast work is proceeding apace on the way to Tiapo.

Tientsin Chinkiang Railway.—At a meeting of the principal merchants and officials of the province of Chihli, in Peking, it was resolved that the line should be constructed in three sections, one in Chihli, one in Shantung and one in Kiangsu, the cost of each section to be raised by its respective province. The foreign concession, in May 1898, was granted to the Deutsch-Asiatische Bank and the British and Chinese Corporation, represented by the Hongkong and Shanghai Banking Corporation. The northern half of the line was to be under the control of the German bank, and the southern half was to be under the control of the Hongkong and Shanghai Bank, and to run from Tahsien to Chinkiang on the Yangtse.

The Sanning Railway.—It is generally reported that the roadbed of the Sanning railway has been condemned by an engineer who has inspected the work. In the first place the roadbed is not wide enough and no mortar or cement was used in its construction, so that the first heavy engine which passes over the road will cause the loose mud and dirt piled up to sink. The work must therefore be done over again in many places, and the hope that the line will be in running order at the end of the year must be deferred. The work is, however, slowly going on and the station house at Sanning City is slowly rising, so that the men who have it in charge mean to go forward with that part of the work as fast as possible.

PUBLIC AND PORT WORKS, DOCK WHARVES, ETC.

TSINGTAU PUBLIC WORKS.—The budget of the German colony of Tsingtau for 1907 provides for the expenditure of 2,300,000 mark on harbor improvements and 1,000,000 marks on the construction of roads, etc.

KOBE HARBOR WORKS.—Cargo-sheds and other provisional construction of the Kobe Harbor Works have been constructed at the mouth of the Minatogawa. At present materials for reclamation and other works are being collected. The work will be completed in seven years.

Port Arthur Harbor.—The harbor office of the Port Arthur Admiralty has cancelled the projected sale by tender of "blockading" and sunken vessels and has decided to blow up these vessels at a cost of Y360,000. The operation has already commenced and the entrance of the harbor will be entirely free before the end of this year at the latest.

Sandakan Harbor Dues Suspended —It is announced in the "British North Borneo Herald" of June 1 that no harbor dues will be exacted for a period of two years in the case of vessels calling at Sandakan for coal for bunkering purposes only. If vessels bring or take away any cargo no exemption will be allowed.

Sasebo Dockyards.—Soon after the conclusion of peace the naval authorities started the work of building three new dockyards at the Sasebo naval arsenal. The new docks will have each the length of 780 feet, 700 feet and 600 feet. Reclamation work has recently been finished and the completion of the whole work will be some time in the beginning of 1909.

Jodelite to Preserve Timbers.—According to the Singapore Free Press, it is estimated that between 3,000 and 4,000 gals. of Jodelite will be used by the contractors, Sir John Jackson, Ltd., for treating the timber to be utilized in connection with the Singapore Harbor. The contractors have used this preservative for similar work in many parts of the world and its efficacy in thoroughly protecting every kind of timber against the attack of white ants, teredos, dry rot, and decay is no longer in doubt.

THE MAULMAIN-MYAWADDI RAILWAY .- Writing on the Maulmain-Myawaddi Railway the Singapore Free Press observes:-If the Siamese Government will run a comparatively short line westwards to join up with the projected railway from Maulmain to Myawaddi, there will be in a few years a direct railway between Rangoon and Bangkok, giving all the advantages of a rapid connection for mails, passengers and lighter lines of goods traffic. As regards passengers from Siam bound for Europe, it would be a great economy in time to proceed from Bangkok to Rangoon. There are a good many interests in Singapore that will have to keep an eye on the possibilities of this Burma Government line to Myawaddi, and its ultimate junction with a line from Bangkok.

FRENCH CONCESSION IMPROVEMENTS.—H. E. Tuan Fang telegraphs to the Waiwupu stating that according to the report of the Shanghai Customs Taotai, Jui Cheng, the French consul-general has requested permission to dredge the creek outside the West Gate to facilitate water communication. As the creek is situated just outside the city wall in the vicinity of the French Concession, Taotai Jui Cheng has been instructed by the viceroy at Nanking and the Governor at Soochow to dredge it with Chinese funds, so as to preserve the sovereign rights of China. The expenses are to be defrayed by the provincial treasury at Soochow. The dredging work will commence at the the West of the Hsia bridge and terminate at the Jihhunkong.

PENANG HARBOR SURVEY .- H. M. S. Merlin, survey ship, arrived in Colombo on May 21 and will be coming through Singapore. She was formerly a sloop, but has been re-fitted at Sheerness as a survey ship. She is on her way to China for a two years' sojourn in Chinese waters where she will be employed in survey work. She is a sister ship of the "Cadmus" and "Clio" She was first commissioned in May, 1903, for a service in the East Indies Squadron, but after a little over a year's service there she was sent home, on the reduction of the Squadron to be sold out of the Navy. The Admiralty thought better of it, and she will be retained on the active list as a survey ship. From the 24th April up to the 11th instant the "Merlin" was busy searching for a rock reported twenty years ago. The survey covered an area of 200 miles but the rock was not found. On the 11th instant the vessel left Socotra for Colombo. She has been commissioned to survey the Penang harbor and its vicinity. This work is to be over in six weeks' time, when the "Merlin" will proceed to British North Borneo. She will next get to Hongkong where the drawing charts of the work already done will be completed - Penang Gazette.

Manila Railway Chances - The financial correspondents of an evening contemporary writes:—
Were it merely the traffic position of the Manila Railway that we were looking at, the future would seem hopeful, for the traffic position is entirely encouraging. But under the arrangements of some months ago the company will pass into American control, and at the moment the rearrangement of its finances, which is the necessary preliminary to

will have to undertake, is delayed by market conditions, which are not exactly conducive to any simple consideration of raising capital. The investor of means, however, who is prepared to wait a short time for the rearrangement of the company's affairs should have a very good chance in locking away 6 per cent debentures, now at 114 cr

so, of a substantial profit. For, before anything final can be done, the question of dealing with the arrears of these debentures has to be taken in hand, and as the arrears are very heavy, it is evident that there must be a very substantial concession. Those who are possessed of means and patience might very well acquire some of the stock for a highly promising profit when the arrears question is settled.—London Mail and Express.

#### SHIPBUILDING, GENERAL MARINE, FISHERIES, ETC.

Canton Transportation. - Certain merchants of Canton are forming a company to run several steam launches between Canton and Fatshan, for carrying merchandise and passengers, especially the former.

HARBIN FISHING COMPANY.—Mukden wires that a fishing company has been established in Harbin with a capital of 400,000 yen. The company's aim is to engage in fishing on the Sungari and Nonne.

BURMA PEARL FISHERY.—The Burma Government are disposing of the right to collect pearls and pearl-shells without diving apparatus and to collect green snails and sea slugs in the Mergui Archipelago for the year 1st July 1907 to 30th June 1908.

Cable to Saghalien.—The Japanese authorities are planning to lay down a submarine cable between the coast provinces of Siberia and Saghalien, in order to cope with the great trade development now in progress in Eastern Siberia.

Korean Sea Products.—A company has been formed among the Japanese in Fusan to exploit the sea products of Korea. A Japanese has been sent down there from the residency general to be present at the opening of the deliberations of the promoters of the organization.

Osaka Iron Works.—The Osaka Iron Works now employs 3,800 men and has the following construction work in hand:—Four steamers, of from 750 tons to 1,800 tons gross each; a dredger of 300 tons; a whaler of 120 tons; a tank steamer of 65 tons; and other smaller vessels.

Large Smelting Furnace.—At Edamitsu Iron Foundry there will be built a large smelting furnace in addition to the present two furnaces. But much time being required in purchase of materials necessary for its construction the work will not be commenced for some six months.

Marine Products Bank.—A scheme is contemplated among the leading marine products merchants of Tokyo and Osaka to establish a bank for the purpose of affording facilities to marine products merchants. Mr. Matsuoka, Minister of Agriculture and Commerce, Mr. Kamiyama, Director of the Marine Products Bureau, and other prominent officials are supporting the scheme.

Launch for Davao.—Ethan E. Allen of the Steam Engineering Department of the Cavite Navy Yard has just delivered a thirty foot launch to Mr. Crowthurst of Davao. The launch is equipped with petroleum engines of powerful pattern and was taken from Manila to Davao under her own power. Mr. Allen is an expert in petroleum engines and the equipment on the launch Fury is the result of most successful experiments.

NEW JAPANESE STEAMERS.—The Mitsu Bishi Dockyard and Engine Works has received an order from the Toyo Kisen Kaisha for the construction of a passenger steamer of 13,500 tons, in addition to the two 13,000 ton vessels now under construction, and a tank steamer of 12,000 tons. The passenger boat is to be completed for sea by September, 1909, and the other by March of the same year.

Nippon Yusen-Kasiha.—The dividend of the Nippon Kaisha for the business term ended April last will be at the same rate as in the previous namely 12 per cent. Owing to the sudden increase of steamers, both foreign and domestic, after the late war the net profit of the company for this term was less than that of previous terms, but there being reserves amounting to 700,000 year from last term there is no decrease in dividend.

Dai Nippon Transportation Co.—The Japan Mail states that the leading transportation, shipping, and landing agents of Yokohama and Tokyo have organized the Dai Nippon United Transportation Company with a capital of \$2,500,000. The company will establish branches at important ports throughout Japan. All Japanese shipping and landing, in Yokohama, it is said, were to close their offices on February 1 and join the new concern.

HUGE JAPANESE FLOATING DOCK.—The construction of a floating dock large enough to accommodate a steamer of 12,000 tons for the Mitsu Bishi Yard at Kobe has now been taken in hand, says the Japan Chronicle. The total weight of the iron works of the dock, we are told, is 5,000 tons, a portion of which, weighing about 1,000 tons, has been ordered from England. The rest is being made at the Imperial Iron Foundry at Wakamatsu near Moji Part of the material has already arrived at Kobe. The dock is expected to be completed in the spring of 1909. The cost is estimated at close upon yen 1,700,000.

Osaka-Hongkong Steamship Line.—There is a scheme among navigators of Okinawa Prefecture (the Loochoos) to open a steamship line between Osaka and Hongkong, via Kagoshima, Naha (the Capital of the Loochoos), Formosa, Amoy and Foochow, asking the Government for a subsidy of 250,000 yen for five years at the rate of 50,000 yen per annum. The scheme will be executed after the completion of the proposed Naha harbor works and in that case two certain steamship companies in existence will be amalgamated.

YANGTSZE CARRYING TRADE.—The following steamship companies have formed a combine for the purpose of conducting the Yangtsze carrying trade:-The Nippon Yusen Kwaisha, Osaka Shosen Kwaisha, Konan Kwaisha, and the Daito Kwaisha. The Minister of Communications, on receiving representatives of the companies, explained that the Government regarded as of much importance the development of the maritime carrying trade between Japan and Yangtsze ports, and that the Treasury was prepared to grant a suitable subvention. Mr. Rempei Kondo, President of the N. Y. K., replied that the amalgamation was now practically settled, and that the capital of the new concern would be -Y-12,000,000. Services will be opened, not only in the Yangtsze, but also along the coast of China, within such limits, however, as shall obviate competition with the existing lines of the N. Y. K. and the O. S. K. lines.

#### MINES, MINERALS AND THE METAL TRADE

KOREAN MINING CONCESSION .- The Korean Government has decided to grant the right to work gold mines to citizens of England, Germany, France, the United States, and Italy.

JAPANESE OIL COMBINE.—The Nippon Kerosene Oil Company at that place has concluded a contract to purchase the International Kerosene Oil Company's business for 1,750,000, yen.

LANCHOU COLLIERY .- Viceroy Yuan Shih-kai contemplates opening a colliery in Lauchou with a capital of two million taels, and a deputy has been sent to the place to make investigations.

HEILUNGKIANG GOLD OUTPUT.-The Heilungkiang officials report that the annual output of gold in that province is valued at Rs 80,000,000. The value of the grain harvest, Rs 10,000,000, manufactured goods Rs. 5,000,000, skins and fishing Rs. 2,000,000.

Kaiping Mines.—Native papers state it is reported that the Kaiping mines are becoming an Anglo-Chinese enterprise.

The present company is to pay over Taels 4,000,000 and appoint Chang Yen Mao Chinese Director General.

KWANGTUNG COAL MINES .- Owing to the financial difficulties in the Kuangtung Province Viceroy Chou Fu has given instructions to the director of the bureau of agriculture and labor to devise means to raise capital and float companies to work all the mines in the Kuangtung Province Viceroy Chou Fu suggested the working of all the coal mines first.

JAPANESE OIL INDUSTRY .- Professor S Otsuka referring to the oil industry of Japan in a speech at the recent meeting of the Nippon Mining Industrial Association said that the yield of oil in Japan was only 35.7 per cent of what was consumed; the great bulk of oil needed in Japan was consequently imported from abroad. The yield of the world in 1902 was 24,020,000 tons; in 1903, 25,380,000 tons; in 1904, 28,577,900 tons; and in 1905, 26,888,300 tons. The output of oil throughout the world was gradually increasing through improvements in mining machinery. The figure for the last mentioned year certainly showed some decrease, but this was owing to the industry in Russia and other countries being impeded by strikes. In conclusion, the speaker pointed out the imperfect arrangements which existed in Japan with regard to the kerosene industry and recommended further visits to the improved works in Europe and America.

PEKIN SYNDICATE MINES .- The directors have issued a circular in which they state that since the date of the annual general meeting considerable progress has been made with the colliery at Ja-Mei-Sen, Honan, and a report by the joint consulting engineers has been received, from which the following extracts are taken: -At that time the No. 1 shaft was already through the coal seam, at a depth of 630 ft, and a square curb was put in at this point, and the walling completed up to the finished portion above. The water being dealt with by the sinking pumps was about 1,000 gallons per minute, and it was necessary that a more permanent arrangement should be adopted. The new pump-house was, therefore, made in the sandstone at 618 ft., and driven to the north-west, and a pair of Worthington compound jet condensing pumps have been erected, and are now satisfactorily working. The level beyond the pump-house was driven forward to a distance of 60 ft. and at that point a borehole was put down in the floor of this level to a depth of 62 ft., at which it reached the top of the coal seam, and was sunk to a further depth of 6 ft. into the seam, but the whole thickness has not yet been ascertained. A new level at 656 ft. has been started to the west with the object of intercepting the coal seam between the point where it was found in the shaft and the point proved by the borehole mentioned above. There is every reason to believe that the general dip of the measures in the immediate vicinity of the Ja-Mei-Sen shaft is to the northwest, and that the level of 556 ft. will strike the coal seam in a short time, and then exploration headings can be driven to the right and left in the seam itself. No further sinking has been done in the No. 2 shaft, but as soon as the developments from No. I shaft have progressed sufficiently operations will be resumed in this shaft by tubing through the collapsed portion. The Shangpeitse borehole, about 3,000 ft. to the northwest of Ja-Mei-Sen, has been pushed on, and is being continued, having now reached a depth of 402 ft., and is now in post-carboniferous measures.

#### FINANCIAL AND MISCELLANEOUS

PROPOSED CHINESE BANK IN THIBET .- The Board of Finance has decided to establish a Chinese bank in Thibet with a capital of two million taels.

Japanese Spinning Trusts.—The Chita Spinning Company in Owari province held an extraordinary general meeting of the shareholders on May 29 in order to obtain approval of the proposed amalgamation with the Miye Spinning Company.

JAPAN'S POSTAL SAVINGS BANKS .- According to the investigations completed at the end of March, the number of depositors in the Postal Savings Banks throughout Japan was 7,325,989 and the amount of their deposits 79,324,629 yen.

TIENTSIN SAVINGS BANK -A native savings bank is going to be opened in the Viceroy's Bank near the Native Customs in the city by order of H.E. Viceroy Yuan. Deposits will be accepted of one dollar and upwards. The bank was open on the 5th June.

TUNG-CHOU PAPER MILL .- The President of the Tu-chih Pu (Board of Finance) has obtained permission to spend Tls. 1,200,000 for the establishment of the proposed Government paper mill at Tung-Chou and the Printing Office at Ching-ho (in the west of Peking.)

DAVAO HEMP COMPANY.—Papers have been filed in the Philippine Land Office by G. W. Sharpe, formerly district treasurer of Lanao, for the purpose of acquiring 2,500 acres of land on the Digos river about 35 miles from the town of Davao. It is the purpose of the company represented by Mr. Sharpe to plant the greater portion of the area in hemp and to experiment in the growing of cocoanuts, rubber, and other products.

JAPANESE RICE FLOUR MILLS-The Japan Rice Cleaning Mill at Hyogo has now started a flour mill in connection with its business, and it is said to be turning out 350 barrels by day and by night. The daily producing capacity of this mill is said to be 1,000 barrels. The Japan Flour Mill, also at Hyogo, will be ready to open operations before the end of the year. When these three mills are in full working order 7,400 bags of flour will be turned out daily in Kobe.

JAPANESE CAMPHOR AND SALT MONOPOLIES.-The estimated net profit from the camphor monopoly in Japan for the 1905-6 fiscal year was about 50,000 yen, but the actual profit was about 400,000 yen. The estimated profit from the salt monopoly for the 1905-6 fiscal year was about 12,600,000 yen, but the actual profit is reported to have been 12,300,000 yen. The authorities expect to obtain more revenue this fiscal year from these sources by introducing various improvements.

SWATOW SUGAR INDUSTRY.—Raw sugar is one of the products of Chin Chew, China. Of late years, owing to the stagnation of trade, the local consumption of raw sugar has diminished, and consequently the exportation of this commodity has declined considerably. Viceroy Chou Fu, discovering this, has delegated a special deputy, Cheong Chungloong, and a foreigner, who is an expert in this line of trade, to establish a sugar refinery in Swatow in order to manufacture sugar and export to foreign countries.

ENEMY OF THE LOCUST .- The discovery is reported in the Argentine Republic of a natural enemy of the locust-a locust parasite in fact. Dr. Massine, an Argentine entomologist, says that every locustkilling fly lays from 300 to 500 eggs, depositing one in every locust, the eggs rapidly developing into grubs with fatal consequences to the locust. He recommends the Agricultural Defence Commission of his own country to propagate this effective enemy of the locusts, and should his laboratory experiments not be misleading no doubt Lamoska langosticida, as the locust fiy is called, will be introduced generally to combat locust scourge.

SINGAPORE COTTON TRADE.—Regarding importation of cotton fabrics at Singapore, Consul-General

D. F. Wilber writes:

In 1905, 4,750,000 pieces of cotton goods were imported, made up as follows: 3,100,000 pieces of plaid cotton, 967,000 pieces of dyed cotton, and 683,000 of printed sorts. The United Kingdom furnished over 4,000,000 pieces of all kinds of the total amount imported, valued at \$7,100,000; the Continent of Europe over 441,000 pieces, valued at \$800,000. From the United States direct only 3,000 pieces were received, a decrease of one-third from 1904. The British sales of piece goods in the Straits Settlements increased from 100,230,200 yards in the calendar year 1904 to 121,670,400 yards in 1905 and to 131,212,300 in 1906.—B. of M.

Formosa Tea Industry.—Consul J. H. Arnold, of Tamsui, furnishes a report on the Formosa tea industry from which the following abstract is taken:

The exports of tea from Formosa during 1906 amounted to 21,992,145 pounds, valued approximately at \$3,500,000, of which the United States took 17,159,310 pounds, against 18,061,911 pounds in 1905. In February, 1906, the Formosa local government changed the tea manufacturers' tax so as to make it payable by the exporters instead of by the manufacturers, as was formerly the case. This tax amounts to \$1.20 per 133½ pounds. In addition to this tax there is also imposed by the Government an export tax of 80 cents upon every 133 ½ pounds. During 1906 the manufacturer's tax and the export tax netted the government \$350,000.

#### HEMP STATISTICS, JUNE, 1907

(Courtesy of C. N. NICHOLSON, Secretary Manila Chamber of Commerce.)

(Courtesy of C. 14. Intellouson, Secretiery manter Chamber of Commen	10.1
Arrivals of hemp at Manila up to 30th June	359,489 Bales. 105,731 Bales.
Arrivals of hemp at all Ports up to 30th June	465,220 Bales.
Stocks on hand in Manila and Cebu on 1st January 1907	63,432 Bales.
Total	528,652 Bales.
Export to all parts to date 30-6-07	439,007 Bales.
Total stocks at Manila and Cebu on 1st July, 1907	89,645 Bales.

## EXPORT OF HEMP, JUNE 1907.

Date	Vessel	London	L'pool	$\substack{A!lantic\\U.S.}$	Pacific East & California	Australia	Other pts.	Total Bales
	F'wd:-	121,988	40,085	140,711	17,150	4,685	29,435	354,054
June 3	Indrani	********		10,985	************	*******		10,985
66 66	Zafiro	3,100	550				701	4,351
" 4	Aldeham		***********				100	100
66 66	Tean							100
" 7	Yuensang							380
" 8	Yawata Maru						151	151
6.6 6.6	Rubi							1,550
" 10	Tsinan					200	-	300
66 66	C. Lopez y Lopez							
" II	Taming	1,000						4,573
" I3					*********	**********	606	350 606
" 15	Changsha		******	******	*******	*********	606	
	Zafiro	500	500		***********	*********	600	1,600
" 18	Kennebec		*********	16,354	* * * * * * * * * * * * * * * * * *	*********	*********	16,354
" 2 I	Yuensang					******	200	200
" 23	Rubi	1,200	**********				72	1,272
66 66	AchillesCebu	4,316	2,175				350	6,841
" 24	Aragonia	********	**********	11,186		**********	**********	11,186
66 66	SungkiangCebu	100			************		30	130
66 68	Manila						150	150
66 66	Prinz. Sigismund		***********			80		80
" 26	Empire						100	100
64 66	Taming	2 100	***********			*****	100	3,200
" 28	Zafiro	5,100	***********		***************************************		550	-
	Nippon Maru	500	*******	***********		******	550	1,050
" 29	Nippon Maru KennebecCebu		******		550		********	550
66 66	KennebecCebu	*******		11,068	************		*** *******	
	KaifongCebu	50	******		*******	**********		50
Тот	A I	137,354	47,110	190,304	17,700	4,965	33,899	431,332

## FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, for July.

STOCK.	WHEN ESTAB- LISHED	CAPITAL	NO. SHAI		VALUE	PAID UP		RESERVE	WORI		DATE	LAST DIVIDEND.	Approximate Yield per cent per annum atPr sentQuotation	CLOSING QUOTATIONS.
BANKS.			-				_							/\$680 ex new
Hongkong & Shanghai Banking (	1865	\$10,000,0	90 8	0,000	\$125	\$125	\ \ \ \ \ \ i \ \ \ \ i \ \ \ \ \ \ \ \	£1,000,000 } \$11,000,000 } \$250,000 }	\$1,	721,558	31-12-06	{ £1.15 - and bonus of £1 @ } ex.2 3\\$24.33 making\$40.80 } for 1906	41	\$522½ n. issue £79 ex n. issue £59 new issue (first call)
National Bank of China, Ld	1891	£699,4	75 10) 9	9,925	£7	£6	} c	£12,735 }		\$71,239	31-12-06	\$2 (London 3 6) for 1903		\$51
Russo Chinese Bank	{	Rbs. 15,000,0 Tls. 2,000,0	00 8 00 1	6,000	Rbs. 1871 Tls. 125	Rbs. 187½ Tls. 125	3 8	Rbs7,130,500 Rbs2.000,000 Tls 800,000	}					Tls. 125
MARINE INSURANCES.							6	\$1,675,000 (		4		000 f 1007	71	\$270 buyers
Canton Insurance Office, Ld	1881	\$2,500,0	00 1	0,000	\$250	\$50	1 7	\$200,000 (	\$	233,638	31-12-05	\$20 for 1905		\$210 buyers
North China Insurance Co., Ld	1863	£150,0	00 1	0,000	£15	£5	\ 8 f	Tls. 100,000 } Tls. 50,000 } \$3,000,000 }	Tls.	185,529	30-6-06	( 1500 at ex. 2-10-11-10 per eact;		Tls. 75
Union Ins. Society of Canton, Ld.	1867	\$3,100,0	00 1	2,400	\$250	\$100	10		\$1,	460,490	31-12-06	Final of \$12 making \$42 for \\ 1905, and interim of \$30 for \\ account 1906	5½	\$760 buyers
Yangtsze Ins. Association, Ld	1862	\$800,0	00	8,000	\$100	\$60	{ j	\$850,000 } \$136,287 } \$ 15,527 }	\$	461,476	31-12-06	\$12 for year ending 31. 12. 05	7	\$175 buyers
FIRE INSURANCES.							6	\$1,000,000)						997 miles
China Fire Ins. Co., Ld				20,000			11	\$320,449 }				\$6 and bonus \$2 for 1905 \$40 for 1905	1 - 0 - 1	\$87 sales \$325 sellers
Hongkong Fire Ins. Co., Ld	1868	\$2,000,0	00	8,000	\$250	\$50		\$1,256,483	- 4	435,236	31-12-06	540 10r 1905	124	TO SCILLIS
SHIPPING.														
China & Manila Steamship Co., Ld	1882	\$750,0	00 1) 3	30,000			1	\$7,000 \$264,638 (				\$1 for 1906		\$15 buyers
Douglas Steamship Co., Ld	1883	\$1,000,0	00 2	20,000	\$50	* \$50	1 :	\$93,562 e \$250,000		Nil.		\$2½ for year ended 30-6-06		\$41
Hongkong, Canton & Macao   Steamboat Co., Ld	1865	\$1,200,	00 8	80,000	\$15	\$15	3	d. i. \$600,000 } \$144,386		\$20,170	31-12-06	\$1 for 2nd ½-year making \$2.00 for 1906	63	\$29% sales
Indo-China Steam Navigation {	1882	m £600,	00 2) (	60,000	£10	£10	3	$i  \begin{array}{c} £120,000 \\ £280,958 \\ £3,999 \end{array}$		£2,452	31-12-05	10 - @ ex. 2-1-9-16 = \$4.69 for 05.	-	\$69
Shanghai Tug & Lighter Co., Ld.   Do. Preference	1903	Tls. 1,500,	00 1 20	,000 {	Tls. 50	Tls. 50		Tls. 54,372	Tls.	13,327	31-12-06	Final of Tls. 3 making $1906$ Final of Tls. $3\frac{1}{2}$ making $1906$ Tls. $5\frac{1}{2}$ .	} 11 10	Tls. 46 sales Tls. 50 buyers
"Shell" Transport & Trading (	1898	£ 2,000,	00 2,00	00,000	£1	£	1 1	£400,000   £5,167.14-1	£85,	355-6-10	31-12-05	1 -(Coupon No. 7) for 1906		45 -
"Star" Ferry Co., Ld	1898 1900	<b>\$200,</b>		10,000 10,000		\$10	11	Tls. 98,000)		\$137	30-4-07	\$1.00 for year ended 30-4-0	7 1 3	\$25 \$15
Taku Tug & Lighter Co., Ld	****	Tis. 1,500,	000 12)	30,000	Tls. 50	Tls. 50	0 4	d Tls. 419,479   e Tls. 62,000   i Tls. 81,200   q Tls. 30,000	Tls.	18,730	31-12-06	Final of Tls. 2 making Tls. 6 fo	r 12	Tls. 48
REFINERIES.			100	20.000	810	610	5		-	en 210	21 12 06	\$8 for year ending 31-12-06	8	\$100 buyers
China Sugar Refining Co., Ld				7,000			1	e \$450,000 } r \$ 56,848 } none	Dr.			\$3 for 1897		\$21
Luzon Sugar Refining Co., Ld Perak Sugar Cultivation Co., Ld. MINING.	1002	Tls. 350,		7,000	arment de l	Tls. 5	Ŏ	Tls. 100,000				Tls. 4. (8%) for year ending 31-8-06	g - 4	Tls. 85 sales
Chinese Engineering & Mining	1901	£1,000,	000 1,0	00,000	£	£	1 }	d £110,000 } h £12,289 }		£12,546	28-2-06	Interim of 1 6 for account year	4	Tls. 15.90 seller
Oriental Consolidated Mining Co., Ld.	1901	G. \$5,000,	000 y 5	00,000	G. \$1			none	G	\$909,050	30-6-06	Interim of 50 cts. for % 1906	-30	G. \$5
Raub Australian Gold Mining (	1892	£200,00		50,000 $50,000$		1 18-1 1 £		£4,873	Dr.	£15,481	31-3-06	No. 12 of 1 -=48 cents		\$6 buyers
DOCKS, WHARVES AND GODOWNS	-													
Fenwick (Geo.), & Co., Ld			000 z	18,000			)	\$64,124 \$550,000)				\$11 for year ending 31-12-06		\$17½ sellers
Hongkong & Kowloon Wharf & } Godown Co., Ld	1000	\$2,000,	000	40,000	\$50		0 }	ı \$30,000 )	1			Final of \$2½ making \$5 for 1906	F Total	1 \$80
Hongkong & Whampoa Dock Co., Ld. Shanghai Dock & Engin'g Co., Ld.	1866	\$2,500,	000 13)	50,000	\$50 Tls 100	\$5 Tls. 10	1 1	v \$50,000 ( \$56,299 ( Tls. 1,000,000	-	\$400,933 3,997	31-12-06	\$ \$6 for 2nd \(\frac{1}{2}\)-year making \$12 for 1906 Final of Tls. 4 making Tls. 8 for 05-	6 10	\$105 sellers 1 Tls. 76 buyers
Shanghai & Hongkew Wharf } Co., Ld	1	Tls. 3,600,			1		1	b Tls. 487,210) r Tls. 100,000 p Tls. 190,100 p			31-12-0	(Final of Tls. 10 making Tls	220 A. W. SCHOOL P.	Tls. 222½ sellers
Vulcan Ironworks, Ld. Yangtsze Wharf & Godown Co., {		Tls. 500,		1,000 2,500		Tls. 50 Tls. 10		e Tls. 75,000)	Tls.	12,187		Tls. 50 for year ended 31-8-06 Tls. 18 for 1905		Tls. 500 sellers  Tls. 2121
LANDS, HOTELS AND BUILDINGS														
Anglo-French Land Investment }	1906					Tls. 10	0	Tls. 15,000	1	3,388		1 28-2-01	1	Tls. 103
Astor House Hotel Co., Ld		\$750, Tls. 100,		30,000 2,000	\$2. Tls. 5	- Inches	5 6	Tls. 35,000 (	Tls.	\$8,418		\$3 for year ending 30-6-06 Final of Tls. 6½ making Tls. 11½ for year ending 28-2-06.	10	\$28\frac{1}{2} \$28\frac{1}{2}\$  1 Ths. 140 buyers
Central Stores, Ld.		\$751.	845 16)	50,123	\$1.	5 \$1	5n	e Tls. 10,000 ( \$1,000 Tls. 10,000			31-12-00	5 \$1.80 for 1906	12	\$15 0 Tls. 50
China Land and Finance Co	. 1866	Tls. 321.		6,425 12 000	\$50	\$5	0 }	r \$648,975 }		\$371	31-12-0	\$5 for 2nd half-year making \$1 for 1906	8	§ \$118
Hongkong Land Investment & Agency Co., Ld.		\$5,000,	000	50,000	\$10	0 \$10	0	e \$250,000	DE SOL			Final div. of \$3½ making \$7 for 1906.	. 6	\$105 sellers
Hotel des Colonies Co., Ld	. 1902	Tls. 225,	000	9,000	Tls. 2	5 Tls. 2		h Tls. 29,783	Tis.	1,935 \$4,699		6 Final of 6% = making 10% for the 1905.		Tls. 13
Hotel Metropole Co., Ld		\$200,	000	2,000	\$10	0 \$10	0	none		94,098	30-0-0	year	12	3 \$80
Humphrey's Estate & Finance (Co., Ld.		\$1,500,	000 1	50,000	\$1	0 \$1	0	i \$208,386		\$11,567	7 31-12-0	6 80 cents for 1906	- 7	1 \$101

## FAR EASTERN STOCKS AND QUOTATIONS-(CONTINUED.)

	FAB-			A J PE			1 2 -0			cent atPr	
STOCKS	WHEN ES'	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	WORKING	DATE	LAST DIVIDEND	Approxi Yield per per annum	QUOTATION
Zamlasa Tand & Dida Co Td	1889	\$300,0	6,00	0 \$5	0 \$30	none	\$105	31-12-06	\$2½ for 1906	63	\$37 buyers
Kowloon Land & Bldg. Co., Ld. Shanghai Land Investment Co., Ld.		Tls. 3 900,0	1 0,00			Tls 869,493 (e Tls. 170,000)			of Tls. 1½ (old shares) and div. of 75 cents and bonus of		Tls. 104 buyer
ientsin Land Investment Co., Ld.	1902	Tls. 772,6	0.0		0 Tls. 100			3 31-12-06	Final of Tls. 5 making Tls. 8 for 1906	0	777 100 1
est Point Bldg. Co., Ld	1889	\$625,0	00 12,50	0 \$50	\$50	none .	\$1,51	9 31-12-06	Final div. of \$2.10 making \$4.10 for 1906		Tls. 100 buy
COTTON MILLS.										04	-900
wo Cotton Spinning & Weaving	1895	Tls. 1,000,0	00 5) 20,00	0 Tls. 50	7 Tls. 50	Tls. 150,000 ( Tls. 45,939)	Tls. 64,98	6 31-10-06	Tls. 10 for year ended 31-10-06	15%	Tls. 64 sales
Ongkong Cotton Spinning, ( Weaving & Dyeing Co., Ld		\$1,250,0		-1			\$21,66	0 31-7-06	\$11 for year ended 31-7-06	11	\$111
	1895		6) 10,00	0 Tls. 7	5 Tls. 75	Tls. 150,000			Tls. 6 for year end. 30-9-06 (8%).		Tls. 50
ning & Weaving Co., Ld	1895 1895	THE PERSON OF TH	0.0		Tls. 100 Tls. 500			231	Tls. 8 for 1906		Tls. 82½ bnye Tls. 330
MISCELLANEOUS.											
nglo German Brewing Co., Ld.		\$100,0	1,00		\$100	none	9.50	5	\$7 for 1906	- 1	\$87½ buyers
ell's Asbestos Eastern Agency, Ld.	1895 1886	£5,377.1 \$12,0	122/ 0,00	1		£814 \$9,000	\$65	31-12-06	1s. 3d. for 1905 \$3 for 1905		\$7 sellers \$20 sellers
hina-Borneo Co., Ldhina Flour Mill Co., Ld	1000	Tls. \$720,0 200,0	00 8) 60.00	0 \$12	\$12	none Tls. 50,000	Nil.	31-12-06 31-12-05	\$1 for 1904. Final of Tls. 5 making Tls. 10	****	\$9 sales
nina Light & Power Co., Ld	1901	\$550,000	6			,	\$25,00		for 1905 60 cents for year ending 28-2-06	$15\frac{1}{2}$	Tls. 64 seller
Do. do. Special Shares nina Provident Loan & Mort-	1907 1898	,	(17) 50,00	0 \$1	\$1	none \$115,000	\$85	31-12-06	80 cents for 1906	9	\$9 sellers
gage Co., Ld	1896	\$187,5	00 25,00			\$50,000	\$2,55		\$1.30 for year ending 31-7-06 ! Final of \$11 making \$2 for (		\$15 buyers
een Island Cement Co., Ld	1889	\$2,000,0 \$420 0	200,00	57.5		\$411,000 \ \$500,000 \ \$100,000	\$15.00	31-12-06 2 28-2-07	1 year ending 31-12-06	11	\$16½ sellers \$21 buyers
all & Holtz, Ldongkong Electric Co., Ld	1889	\$600,0	60,00	0 \$10		\$186,000 none	\$2,95		\$1.00 for year ending 28-2-07.	7	\$142
Do. (New)	1907	\$750.0	$\begin{array}{c} 25,00 \\ 50,00 \end{array}$	The state of the s		none	\$2,65	30-4-07	19th Oct. to 30th April, 1907)	200	\$101 s. & b.
ongkong Ice Co., Ld. ongkong Rope Manufacturing	1881	\$125,0 \$500,0				k \$105,000 \$65,000		31-12-06		54	\$24
en Landbouwexploitatie in	1902				\$10 Glds. 100	( The E47 E00 )	1	4 31-12-06	\$2 for year ending 31-12-06 Second interim div of Tls. 7½ } making Tls. 15 for account }		\$22½ buyers. Tls. 292½ b.
Langkat	1902 1904	Tls. 350,0 \$675,0			Tls. 50	74 N. S.	Dr. Tls. 81,06	0 31-12-05	( 1907		Tls. 25 \$5 buyers
anghai Gas Co., Ld	1903	Tls. 800,0	00 24,00	Tls. 50	Tls. 50	d Tls. 100,000		0 31-12 06	of Tls. 1½ for year ending		Tls. 107 selle
anghai Horse Bazaar Co., Ld	1904				Tls. 50	1 TI- 45 000 1	. Tls. 9,75	1 31-12-05	Tis. 4 for 1905		Tls. 45 sales
anghai Pulp & Paper Co., Ld. anghai-Sumatra Tobacco Co.					Tls. 100	( Tla 94 820 )	1		Final of Tls. 5 making Tls. 10	1.2%	Tls. 80 selle
Ld	1902 1881		00 9) 30,000	5	P20.1	w Tis. 50,000 (		3 31-10-06	for 1906	- 9	Tls. 110 buy
anghai Waterworks Co., Ld outh China Morning Post, Ld.	1903	£288,0 \$150,0	00 7,200	\$25	£15 \	Tls. 190,000 none	Dr. \$41,93		Int. div. of 5  - for half-year 1906 None	10000	Tls. 325 Tls. 295 \$23
Colli Liauriury Co., Liu	1902	\$100,0			\$5	none  1 Tls. 15,259 /			1 30 cents (old) and 15 cents (new) for year ended 31-5-06		\$7 sales
	****		00 16) 50,000		Tls. 100	re Tls. 4,000 i	4	1	Interim of Tls. 4 for year 1905-6 First year		Tls. 100 buy
nited Asbestos Oriental Agen- cy, Ld.	1896	\$100,0				\$25,000		2 31-5-06	(70 cts. on 9.900 ord shares &)		\$12% sales \$10% buyers
atson (A. S.) & Co., Ld	1886	\$900,0	90,000	\$10	\$10	\$300,000 \ \$25,000 \	\$5,48	2 31-12-06	(Final of 40 cts, making 80 cts.)	71	\$11 sales.
illiam Powell, Ld	1901	\$150,0	00 15,000	\$10	\$10	e \$4,500	\$18	30-6-06	(Final of 30 cents making 80)	10	\$8
eeks & Co., Ld		\$400,0	20,000	\$20	\$20	\$10,000	\$6,89	8 28-2-07	Final of \$1.20, making all \$2	10	\$20 buyers.
LOANS AND DEBENTU	JRES.		GENTS FOR LOAN.	THE A	MOUNT OF LOAN.	PAR VALUE	OUTSTANDING BONDS.		WHEN PAYABLE.		CLOSING QUOTATIONS.
ina Government, 7 per cent.				1	Tls. 767,200	Tls. 250	- 1914	Mar. 31	st and Sept. 30th each year unti	1	nor \
ngkong Hotel Company, Ltd Mortgage Debentures of 1899	., 6 ps	er cent.     H	longkong&Sh	ang-	\$500,000		§ all	M	ar. 31st, 1917 arly, June 30th and December 31st		par.
anghai & Hongkew Wharf Co	mpany	7, Ltd.,	hai Banking		Tls. 543,900		********		arly, June 30th and December 31st		Plus
tor House Hotel Company, cent. Debentures of 1903	Ltd.,	8 per	p or well off.		Tls. 500,000	Tls. 100	~~~~~~		arly, January 1st and July 1st	Tls.	accru
per cent. Debentures of 1903	Co.,	Ltd., 6	-		£500,000	্ৰ প্ৰ	£431 966		arly, June 30th and December 31st		intere
ternational Cotton Manufactur 7% Debentures of 1901	ing C	o., Ltd. Rus		Bank	Γls. 500,000		11		arly, March 31st and Sept. 30th		par. 974.
of 1907	% Deb	entures	**********		\$500,000				arly, June 30th and December 31s		

- b Building Reserve Account.
- c Capital Reserve Fund.
- d Depreciation Fund.
- e Equalization of Dividend Fund.
- f Exchange and Investment Fluctuation Account.
- g Gold Reserve Fund
- h Exchange Reserve Account.
- i Insurance Fund.
- Reinsurance Fund.
- k Contingencies Account.
- l Legal Reserve Fund.
- m Authorized Capital n Sinking Fund.
- o Raw Sugar Reserve Account.

- q Boiler Repairs and Renewals Account
- r Repairs and Renewals Account.
- 8 Silver Reserve Fund.
- . t Depreciation and Repairs Account
- u Underwriting Suspense Account.
- v Special account
- w Special Works Fund.
- x Extra Reserve Fund.
- y 72,560 owned by the Company.
- z 7,200 shares unissued.
- 1 5,725 shares unissued. 2 First issue of 60,000 of which
- 10,411 unalloted. 3 5,000 shares unissued.

4 4,480 shares unissued.

- 6 1,616 shares unalloted.
  - 7 842 shares unissued.
  - 8 14,000 shares unissued.
  - 9 17,000 shares unissued.
  - 10 0,453 shares actually issued.
  - 11 7,688 shares actually issued.
  - 12 4,200 shares unissued.
  - 13 500 shares unissued.
  - 14 198 shares unissued.
  - 15 22,250 shares unissued. 16 10,000 shares unissued.
  - 17 Special shares are entitled to half of the profits.

- ernment-Kuping Tls. 5,000,000.
- \* Based on last year's dividend.
- \*\* Based on present dividend. || Only Tls. 134,000 taken up.
- § 216 held by the Company.
- In certificates of £20 and £100.
- Redeemable in 10 years, or at option of Company, the Company giving 6 months notice.
- Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 1952.
- Dr Deficit.

## SINGAPORE SHARE QUOTATIONS

(Courtesy Messrs. Fraser & Co., Brokers, Singapore, June, 1907)

te of or- tion	Capital	Capital paid up	Sharrs Issued	Value Value	Paid up	Reserve	Last Dividend	Name	Buyers	Sellers	Closing
		- F - 3		. TALL				MINING			
03	\$300,000	300,000	30,000	10	10			Belat Tin Mining Co., Ltd	15.50	15.75	\$15.75
007	\$300,000 £400,000	225,000 350,000	22,500f* $350,000a$	10	10			Bruang Ltd		9.50 2.60	9.50 2.50 17.00
01	\$600,000 £30,000	600,000 30,000	60,000	10	10		10% interim for 1906	Bruseh Hydraulic Tin Mining Co., Ltd Jeher Hydraulic Tin Mine, Ltd	15.00	17.00 15.00	17.00 15.00
05 07	\$400,000	\$375,000	$30,000 \\ 37,500b$	10	10	*******	3f- during 1906	Kanaboi, Ltd.	10.00	8.50	8.50 12.25
01 06	£60,000 £100,000	£90,000	60,000 90,000c	£I £1	£1 £1		- <i>f</i> 6 interim for 1907	Kinta Tin Mines, Ltd	12.00	12.25 14.75	14.75
05	\$150,000	99,000	9,900d	10	10	6,000	55% for 1906	Kuantan Tin Mining Co., Ltd Lahat Mines Ltd	21.50	9.50	21.50
06	£120,000 £30.000	£120,000 £25,000	120,000	£1	£1			Malaya and Siam Corporation, Ltd			£1 10s. 0
06	\$450,000	\$337,500	45,000	10/-	10/- 7.50			Malacca Tin Dredging Co., Ltd.		6.50	15/- pre 6.50
06	£250,000	£145,000 }	600,000	5f-	2/6			Pahang Consolidated Co., Ltd	20/6	20/9	20f6 pre
04	£120,000	100,000	100,000 100,000e	1	1	******	4f6 interim for 1907	Pusing Lama Tin Mines, Ltd	20.50	21.00	21.00
005	£27,000	21,750	21,750f 50,000	1	1	4,873	1f- paid January 1901	Rambutan, Ltd	21.75 5.00	22.50 5.25	22.50 5.00 5.00
92	£200,000	191,250 } 35,200	150,000	1	18/10		1f- " "	Redhills Tin Mining Co., Ltd	5.00	5.25	5.00 23.00
98 98	£40,000 f.2.000,000	1,800,000	35,200g $18,000$	100	100		52½% for year ending 31-12-06	Redjang Lebong Mining Co		20.00	650.00
00	\$110,000	110,000	22,000	5	5		10% for 1907	Royal Johore Tin Mining Co., Ltd		2.50 8.75	2.50 8.75
907	£80,000	£60,000	40,000	1	10/-		00.04 1 4 1 6 10.08			13.50	13.50
906 899	\$850,000 \$230,000	850,000 230,000	85,000 23,000	10	10	******	20% interim for 1907	Serendah Hydraulic Tin Ming. Co., Ltd Sipiau Tin Co., Ltd	1	7.69	7.00
07	£90,000 £160,000	70,000 149,185	70,000g* $149,185h$	£1	i£1		2/- interim for 1907	Tekka, Limited	11.50	12.00	12.60 22.50
02	2100,000	140,100	149,10011		1		2/- Interim 101 1301	RHRRED			
	0170 000	101000000	1 46,500i	1	1		18% for year ending 31-12-06	Anglo-Malay Rub. Co., Ltd. Fully paid			£3 12s. 6
05	£150,000	104,937 10/-	93,500	1	12/6		1076 for 3 car change of 12 observed	" Contributory			£3 2s. 60 \$19.00
05	\$200,000	87,400	1,700j 8,800	10	10 8	*******		Balgownie Rub. Estate Ltd. Fully paid Contributory	19.00		\$17.00
04	£30,000	11,125	7,000k 11,000	1	716	******		Batu Caves Rub. Co., Ltd. Fully paid			£2 2s. 6d £1 12s. 6
05	\$700,000	610,000	61,0001	10	7/6		F. CT	Batu Unjor Rubber Co., Ltd.	20.25		\$20.25
03	£70,000 \$150,000	61,000 125,000	61,000m $12,500n$	10	10		5% interim for 1906	Castlewood Rubber Co., Ltd	8.00	8.50	£5 78. \$8.25
04	£12,000	10,500 }	6,000 .	1	1		5% to 31-3-06	Cicely Rubber Estates Co., Ltd			£2 17s. £2 15s.
05	£75,000	55,000	6,000 55,000e	1	15/-		10% to 31-3-06	Consolidated Malay Rub, Estates, Ltd			£2 38.
06	£310,000	227,783 15/-	§ 181,454p	1	1		11% for year ending 31-12-06	Highlands & Lowds. Para Rub. Co., Ltd Fully paid			£2 10s.
			(123,546	1	7/6		11% for year ending 31-12-06	" " Contributory	£160		25 - 10 - 10 - 10 - 10 - 10 - 10 - 10 - 1
06	£180,000	£180,000	18,000	f.250	250			Kuala Lumpur Rubber Co., Ltd Langen Rub. and Cocoanut Co., Ltd		£17.6	£1 78 60 f.250.
06	f.1 75,000	f.117,500	3 460	f.250	125	Transfer .					f.125. f.250.
06	\$250,000	225,000	160 $22,500q$	f.250 10	250 10			Ledbury Rubber Co., Ltd	12.00		\$12.00
			10,000	1	1		15% for 1906	Linggi Piantations Ltd., 7% Pref	-		£4 12s.
95	£50,000	32,332 10/-	10,000	î	î						00 10
			115,000	1	5f- 1		7½% for year ending 31-12-06	Malacca Rubber Plantations 71% Pref.		£12.6	£2 10s. £1 2s. 6
006	£300,000	260,625 }	140,000	1	î			" Ordinary Fully paid		19f-	19 <i>j</i> -
003	£30,000	20,000	45,000 20,000r	1	2f6 1	*******	40% for 1906	Pataling Rubber Estates Synd. Ltd			£6 10s.
06	\$250,000	225,000	22,500i*	10	10	18 lis		Bagalla Rubber Co., Ltd		9.00	\$9.00 £2 0s. 0a
04	£20,000	8,794	12,412	1	10/-				T	~~,0.0	
04	\$100.000	85,000	\$508	100	100		20% for year ending 31-1-07		300.00		\$300.00 £7 10s.
98	£30,000	26,762 10/-	3,700	1 100	2/6			**	WE KNOW	100.00	nominal
03	\$250,000	208.000	1,300t 1,200	100	65		***************************************	" " Contributory	William St. Committee	165.00	\$165.00
05	\$100,000	83,550	$8\ 355u$	10	10	******		Sione Rubber Co., Ltd Sungei Way (Selangor) Rub. Co. Ltd	all the formal being	14.00	\$14.00 £2 5s. 3
04	£50,000	24,420	6920v $35,000$	1	10/-			". " Contributory			£ 1 7s. 6
04	£60,000	50,000	50,000w	1	I	*******	55% for 1906		£6.0.0	-	£6 0s.
0.4	OF ORE					001111	1007 31 1 1 2 1007	GENERAL			
94	£5,377,10.0 \$225,000	£4,648.15j- 225,000	7,438	12f6 50	12f6 50	£814,11.9 1 112,500	10% dividend for 1905	Bells Asbestos Eastern Agency, Ltd Fraser & Neave, Ltd	140.00	145.00	7.00
65					(	10,000,000a*	) £1 15s. & bonus of £1 at ex. 2s				
G-F)	\$10,000,000	10,000,000	180,000	125	125 {	11,000,000b* 250,000c*	3 3d. making \$40.80 for 1906	Hongkong & Shanghai Bankg Corptn	13 (12)		855.00
05,	\$2,400,000	2,400,000	18,000	100 100	****	40,000	7½% for year ending 31-10-06			170.00	170.00
6	\$1,000,000	1,000,000 }	6,000	100	100	600,000	10% for year ending 31-12-06	Katz Brothers, Ltd. Deferred	-		135.00
)1	\$34,000	34,000	4,000 3,400	100	100	*******	20% for year ending 31-10-06	Maynard & Co., Ltd			nomina 21.00
99	\$875,000	875,000	6,000	100	100	150,000	5% for year 1906	Riley, Hargreaves & Co., Ltd	107.50	107.50	107.50
03	\$600,000	240,000	2,750 $24,000x$	100	100		7% for year 1906	Singapore Cold Storage Co., Ltd		7.50	110.00 7.50
91 84	\$30,000	30,000	600	50 100	50 100	20,000 35,000	10% for year ending 31-7-06	Singapore Dispensary Ltd		55.00	7.50 55.00 150.00
90	\$500,000	200,000 500,000	2,000 5,000	100	100	400,000	10% for 1906		AND CONTRACTOR HOLDER	150.00	195.00
			) 2,535y	10	8	241,075d*		Straits Tobacco Factory, Ltd		4.00	4.00
04	\$40,000	\$30,280	1.1,000	10	10	1,000,000]	1	" " "			nomina
87	\$3,000,000	2,500,000	250,000z	10*	10}	1,087 384e*	10% & 5% bon. ½ yr. end. 30-9-06			63.00	62.50
64	\$3,700.000:	3,700,000	37,000	100	100	1,950,000	\$6 for half year ending 31-12-06	Tanjong Pagar Dock Co., Ltd	740.00		740.00
	and the							DEBENTURES			
a 50	0,000 unissue	d	m 9.00	0 unissue	d.		y 465 unissued.	Howarth Erskine, Ltd. 6%\$ 600,000 Singapore Municipal 6%		-	3% pren 20% pren
b = 2	2,500 "		n = 2,500	0 "			z 50,000 " a* Special Gold Reserve Fund	5%1,878,000		-01	2% pren
l = 5	5,100 "		p 20,000 p 5,000				b* Silver Reserve Fund.	" 4½%1,600,000 " 4%602,900		5%	5% preu 2% dis.
e 22	2,000 "		g 2,500	0 "			<ul> <li>c* Insurance Fund.</li> <li>d* Sundry Reserves.</li> </ul>	Riley, Hargreaves & Co., Ld. 6%_225,000	)	3%	3% pren
9 4	1,800 "		r 10,000 s 150	0 "			e* Sundry Reserves.	Tanjong Pagar, Dock Board 6% 250,000			3% pren
h 1(	0,815 "		* 150 t 300 u 1,64	5 "			f* 7,500 unissued. g* 20,000 "				
9	2,000 "		v 8,08	0 "			h* 5,000 '' i* 2,500 ''				
40.00			w 10,000				7.T		AND RESIDENCE OF THE PARTY OF T		THE RESERVE THE PARTY OF THE PA

## YOKOHAMA SHARE QUOTATIONS

COURTESY A. C. HUTTON POTTS, SHARE AND GENERAL BROKER, YOKOHAMA, JUNE 1907

STOCKS	CAPITAL.	NO. OF SHARES	ISSUE	AMOUNT PAID UP	RESERVED	AT WORKING AC- COUNT OR CAR- RIED FORWARD	The state of the s	LAST	FOR TERM	CLOSING
Brett & Co., Ltd. Club Hotel, Ltd. Grand Hotel, Ltd. Helm Bros., Ltd. Langfeldt & Co., Ltd. C. Nickel & Co., Ltd. Yokohama Engine and Iron Works Oriental Hotel, Ltd., Ordinary	500,000 186,000	2800 1850 5000 3720 1500 20000 10000 3000	-Y-10 100 100 50 100 25 50 50	-Y- 10 100 100 50 100 25 50 50	3,000 $22.500$ $50,000$ $62,285.42$	-Y- 943.52 -Y- 13,990.77 -Y- 2,916.83 Dr. 20.304.15 1,470.97 -Y- 16,282.42	31-12-06 31-3-07 31-12-06 31-12-06 31-10-06 31-5-06 31-8-06	8% 7% 6% 20% 16% 35% 15%	for 1 year for 1 year	
Oriental Hotel, Ltd., Preference	1,000,000	2000 10000	50 100	50 100	02,200.In		First Year.	8%	for 1 year	64 Sales. 105 Sales.

† 285,000 unissued.

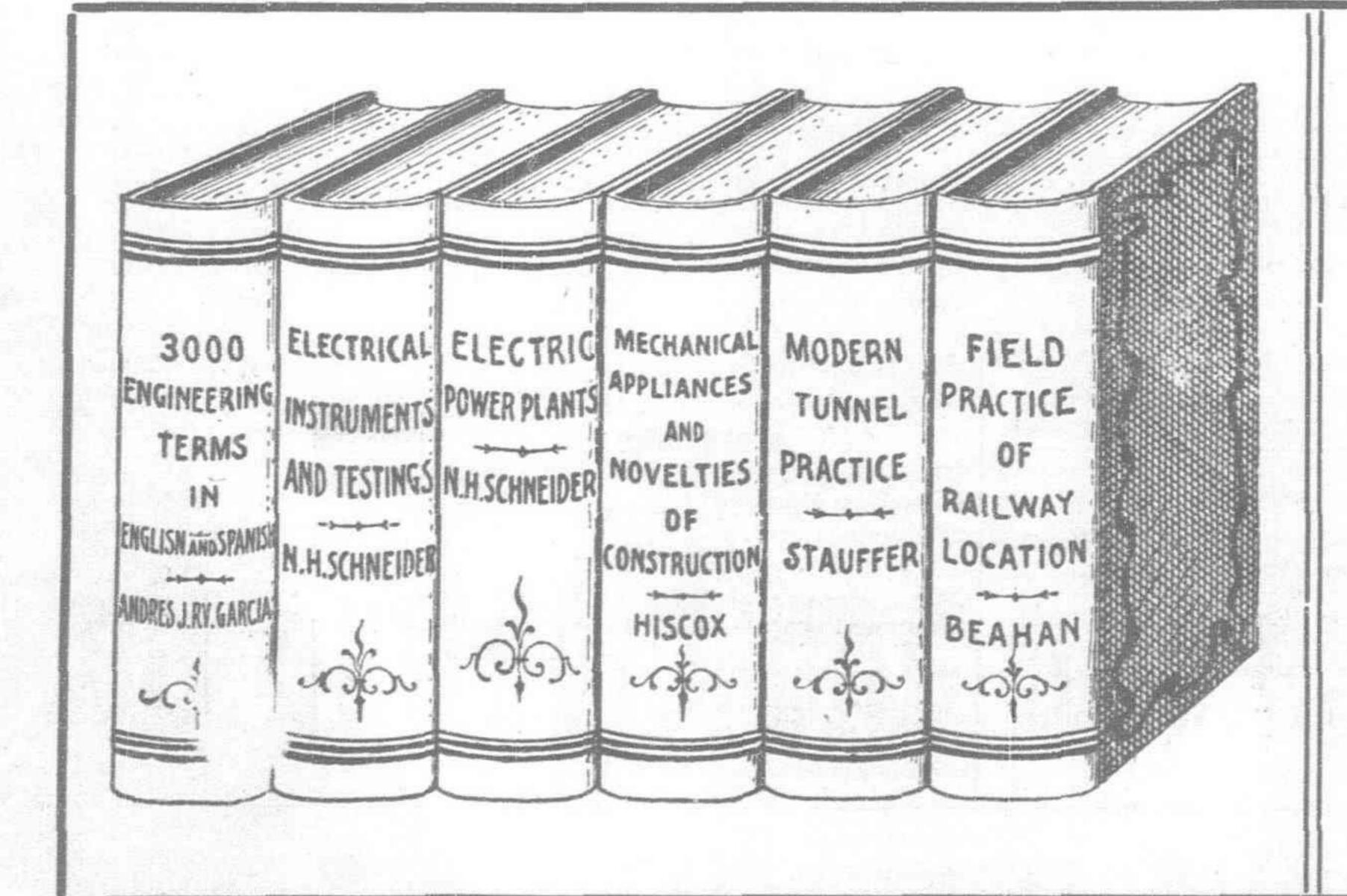
‡ 475,000 unissued.

\*-Y-390,000 issued.

110,000 unissued.

+ Zioioo amboaca									
DEBENTURE LOANS	AMOUNT OF	LOAN.		VALUE SENTURES.	RATE OF INTEREST.	INTEREST PAYA	BLE.	CLOSING QUOTATION,	
Brett & Company, Limited	250,000.00		100.00 100.00 100.00 100.00 100.00		7% 7% 8% 6%	1 June and 1 Dec. 30 June and 31 Dec. 1 May and 1 Nov. 1 April and 1 Oct. 30 June and 31 Dec.		85 Sales. 106 Nominal. 110 Sellers. 110 Sellers. 100 Sellers.	
JAPANESE STOCKS.	FACE VALUE.	AMOUNT UP.		DIVIDEND PER ANNU!	1.	IVIDEND PAYABLE.	CLOSI	NG QUOTATION.	
Exchequer Bonds 1st issue	100 100 100 100	-Y-100 100 100 100 100 100		5% 5% 5% 5% 5% 5%		June and Dec. March and Sept. June and Dec. June and Dec. March and Sept. June and Dec. June and Dec.	-Y	95.50 ex int. 92.90 92.90 87.50 ex int. 87.50 '' '' 86.00 86.60 ex int.	

Exchequer Bonds 1st issue	-Y-100	-Y-100	5%	June and Dec.	-Y- 95.50 ex int.
Exchequer Bonds 2nd issue	100	100	5%	March and Sept.	92.90
Exchequer Bonds 2nd issue  Exchequer Bonds 3rd issue	100	100	5%	March and Sept.	92.90
Consolidated Bonds (Seiri)	100	100	5%	June and Dec.	87.50 ex int.
War Bonds (Gunji)	100	100	50%	June and Dec.	87.50 " "
Imperial 50% Bonds (Coburi)	100	100	50%	March and Sept.	86.00
Imperial 5% Bonds (Goburi)	100	100	50%	June and Dec.	86.60 ex int.
Kobe Water Works Bonds	100	100	607	June and Dec.	96.00 " "
Ocaka Harbour Bonds	100	100	607	June and Dec.	96.00 " "
Osaka Harbour Bonds	100	100	607	June and Dec.	96.00 " "
Osaka City Public Loan Bonds	100	100	607	June and Dec.	99.00 " "
Yokohama Water Works Bonds	100	100	6079		
Yokohama City Public Loan Bonds.	100	100	0 70	March and Sept.	,, 100.00
Sanyo Railway Company Debentures (2nd issue)	100	100	40.07	April and Oct.	149.00
Tokyo Stock Exchange Company	50	50	1507	June and Dec.	112.00
Hokkaido Colliery (Tanko) Steamship Company Limited	50	20	10%	July and Jan.	105.00
Hoden Petroleum Company, Limited	50	50	30%	Ap'll and Oct.	11 135.00
Yokohama Electric Tramway Company, Limited	50	50	6%	July and Jan.	,, 47.20
Tokyo Railway Company Limited	50	50	9%	June and Dec.	,. 70.55
Keihin Electric Railway Company, Limited	50	50	13%	June and Dec.	, 91.60
Hokkaido Hemp Weaving Company, Limited	50	50	13%	July and Jan.	,, 61.50
Kanegafuchi Cotton Spinning Company, Limited	50	50	20%	July and Jan.	,, 114.00
Tokyo Cotton Spinning Company, Limited	50	50	20%	July and Jan.	,, 75.20
Fuji Gassed-Yarn Company, Limited	50	50	25%	July and Jan.	,, 102.50
Nisshin Cotton Spinning Company, Limited	50	$12\frac{1}{2}$			,, 9.10
Fuji Paper Mill Company, Limited	50	50	10%	June and Dec.	,, 52.80
Yokohama Dock Company, Limited	50	33	15%	June and Dec.	,, 67.00
Tokyo Rope Manufacturing Company, Limited	i 50	50	20%	June and Dec.	,, 115.00
Nippon Sugar Refinery Co., Ltd. (Tokyo)	50	50	20%	June and Dec.	, 83.70
Dai Nippon Beer Brewery Company, Limited	50	50	15%	July and Jan.	, 108.50
Tokyo Gas Company, Limited	50	50	15%	July and Jan.	, 96.30
Kirin Brewery Company, Limited.	50	50			80.00
Tokyo Electric Light Company Limited	50	50	10%	June and Dec.	., 69.60
Yokohama Electric Light Company, Limited	. 50	50	15%	July and Jan.	. ,, 83.00
Osaka Electric Light Company, Limited	50	50	131%	July and Jan.	, 119.00
Kobe Electric Light Company, Limited	50	50	10%	July and Jan.	85.00



## A. H. LAMOTTE

## BOOK EXCHANGE

72-74-76-78 Real, Intramuros - - - MANILA, P. 1.

SCIENTIFIC AND ENGINEERING BOOKS
WE CARRY ALL THE LATEST
LEADING MAGAZINES, SCIENTIFIC
AND COMMERCIAL PAPERS

# Electric Lighting Plant

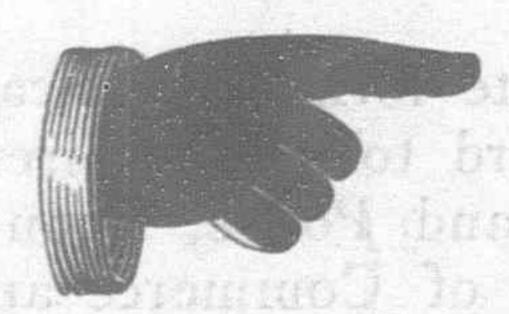
# FOR SALE

## Consisting of

2-300 Kilowatt General Electric Dynamos (5,000 lights each) for Incandescent Lamp Lighting, complete with exciters, switch board engines, boilers, pumps, condensers, filters, piping, etc.

8-50 Kilowatt Brush Dynamos with panels

- 5 Arc Lighting Dynamos with panels
- 6 Engines with shafting, piping, etc.
- 6 Boilers



Also Arc Lamps, Meters,
Transformers, etc.

This plant furnished the entire lighting for the City of Manila until the recent installation of a street railway lighting and power system necessitated building a new power house.

toning to the transfer one the bids to be the light of the

FOR FULL PARTICULARS WRITE THE

# Manila Electric Railroad and Lighting Co.

MANILA, P. I.

OUR SPECIALTIES: OREGON PINE, CALIFORNIA REDWOOD, BUILDERS' HARDWARE

## REMONAL NOTCE

We Have Moved to Our New Store.

## 319 MUELLE DEL REY

"Round the corner from Clarke's." Building formerly occupied by Compania Maritima.

We have moved our offices and our complete stock of HARDWARE from 293 San Miguel and 32 Plaza Moraga and consolidated our business in our spacious new home where all business will be transacted hereafter.

## California-Manila

Lumber Commercial Company

LUMBER

HARDWARE

SPECIAL



The attention of British Corporations, firms and merchants doing business in these Islands is hereby invited to the provisions of the Corporation Law (Act. No. 1459), passed on March 1, 1906, under Sections 68 to 73 of which foreign Corporations are required to take out a license, on or before the first proximo, to do business in the Islands.

Licenses are issued by the Chief of the Division of Archives, Patents, Copyrights and Trademarks, upon the order of the Secretary of Finance and Justice, in the case of banks, savings and loan banks, trust corporations and banking institutions of all kinds, and by the Secretary of Commerce and Police,

in the case of all other corporations.

Corporations other than banking corporations should fill out the appropriate forms (Application and Certificate forms), blank copies of which, together with full information in regard to the requirements of the law, will be furnished to any corporation by the Department of Commerce and Police, upon request; and they should transmit them, with the necessary documents, to the Secretary of Commerce and Police on or before August 1, 1907.

Manila, July 19, 1907. His Britannic Majesty's Consul-General for the Philippine Islands

FIRSTER TRACC

FOR DISPLAY-WINDOWS, SHOW-CASE, WARDROBES, CHINA CABINETS, ETC. FOR DISPLAY-WINDOWS, SHOW-CASES,

MADE TO ORDER IN ANY SHAPE AND MIRRORS MADE TO ORDER IN ANY SHA

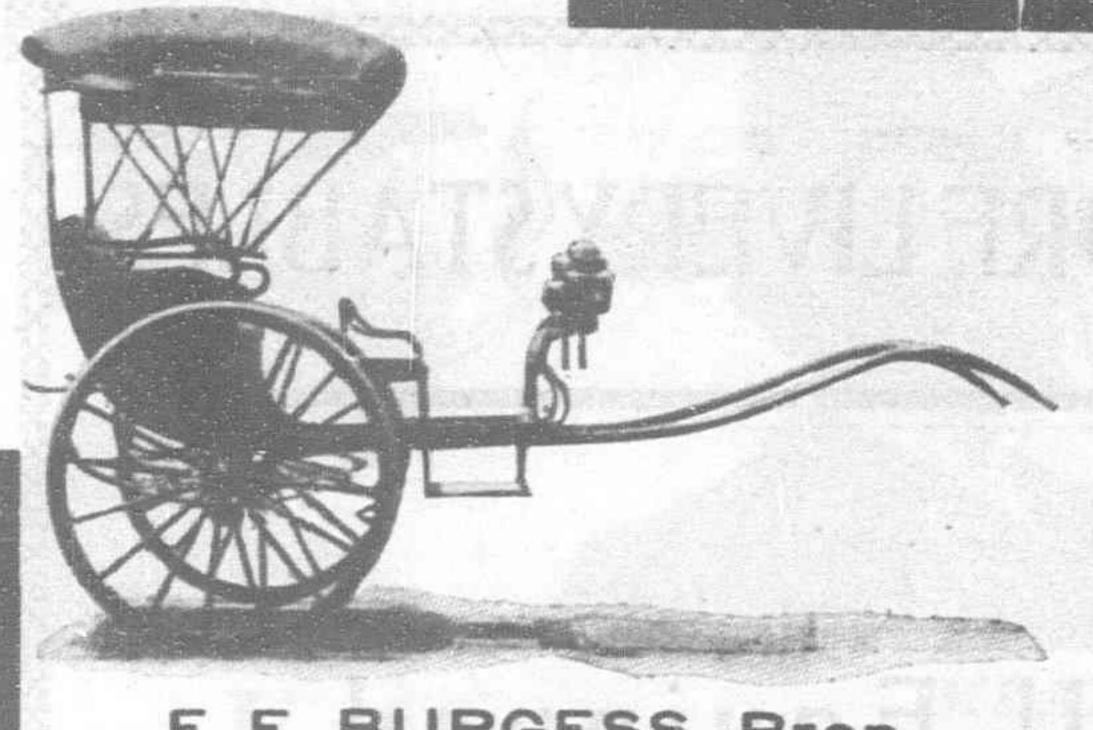
PHOTO SUPPLIES

A LARGE STOCK ALWAYS ON HAND AND OF THE BEST QUALITY.

TENNIS GOODS STANDARD GOODS. SPECIAL ATTENTION TO OUTSIDE ORDERS.

Wholesale and Retail Squires, Bingham & Co.

MANILA, P. I.



F. E. BURGESS, Prop.

ONE 211 284-286 CALLE ENRILE, STA. CRUZ

MANILA, P. I.

## PHILIPPINE CARRIAGE WORKS

MANUFACTURERS OF HIGH GRADE VEHICLES

Lightness and durability our specialty
We Use

SAVIN PATENT HUBS-SHERWIN-WILLIAMS PAINTS AND VARNISHES

## SANTA MESA ROPE WORKS

HIGH GRADE MANILA ROPE

CORRESPONDENCE SOLICITED

Sole Agents and Depot

3 Callejon de San Gabriel

H. R. COOPER & CO.

Manila, P. I.

## SAN MIGUEL BREWERY

MANILA, P.I.

The Largest and Most Modern

Brewery

IN THE FAR EAST

Get into the Habit of Asking for San Miguel

IT IS ABSOLUTELY PURE

Containing No Trace of Injurious Chemicals

## MANILA CONSTRUCTION CO.

CONTRACTORS AND BUILDERS

GENERAL ENGINEERING WORKS PLANNED AND ESTIMATED-REINFORCED CONCRETE CONSTRUCTION-RAILROADS, BRIDGES AND BUILDINGS

Works Completed and in Construction

Olsen Building, Manila, Completed New Telephone Conduct System, Manila, Completed New Water Works Reservoir, Manila, in Construction Tarlac (P. I.) Railroad, in Construction

Address all Communications to

8 H. THURBER, Manager

MANILA, P. I.

P. O. Box 508

## The Philippine Journal of Science ##

Edited by PAUL C. FREER, M. D., Ph. D.

Co-Editors: E. D. MERRILL, M. S. RICHARD P. STRONG, M. D.

PUBLISHED BY THE BUREAU OF SCIENCE OF THE PHILIPPINE ISLANDS

A Journal devoted to the scientific work done in the Philippine Islands by members of the Staff of the Bureau of Science, and by other scientific workers.

Beginning with Volume II, January, 1907, the Journal is divided into Three Sections:-

Section A, General Science..... \$2 (gold) per year Section B, Medicine..... 3 (gold) per year Section C, Botany ..... 2 (gold) per year THE ENTIRE JOURNAL IS \$5 (GOLD) PER ANNUM

Each section is separately paged and indexed and the number will appear as fast as material is available.

A limited number of copies of Volume I is still available for sale.—The price for the Volume (unbound) is \$5 (gold) per year.

SUBSCRIPTIONS may be sent to the DIRECTOR OF PRINTING, Manila, P. I.

## WALDORFLIVERYSTABLES

Elegant & Serviceable Carriages & Calesas

B. D. JOHNSON, Proprietor

Telephone No. 266 MANILA, P. I.

2 ISLA DE ROMERO

## AGUSTIN MENDOZA: CALL FLAG

STEVEDORE

Calle San Nicolas 51 - - - MANILA, P. I.

Twenty-Five Years of Satisfactory Service With Compania General de Tabacos de Filipinas, and Compania Transatlantica

> All Lines of Stevedoring at the Most Reasonable Rates

## AUSTRALIAN

TEL. 493

Prompt and Free Delivery

We Solicit Provincial Orders

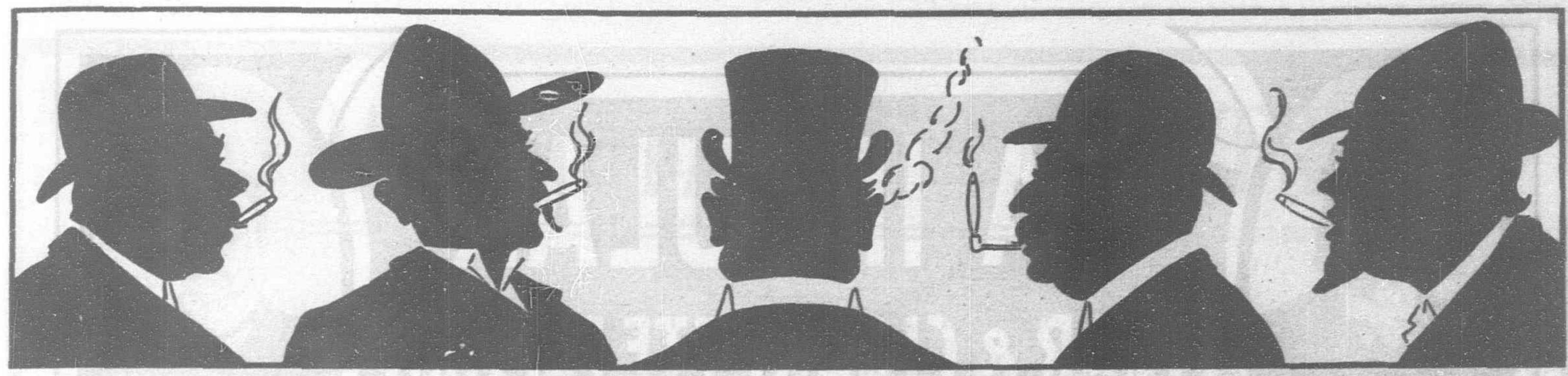
BEST

FOR KITCHEN FOR STEAMERS FOR FACTORIES

FULL WEIGHT MODERATE PRICES

V. MADRIGAL

24 Orozco, Quiapo



Yebana

MANILA, P. I. P. O. Box 442

Cable Address: "PROTECTION"

MEANS

Highest Quality, Finest Workmanship,

And

An ideal smoke

Gold medal

St. Louis 1904

Two gold medals Portland (Ore) 1905 CIGARS

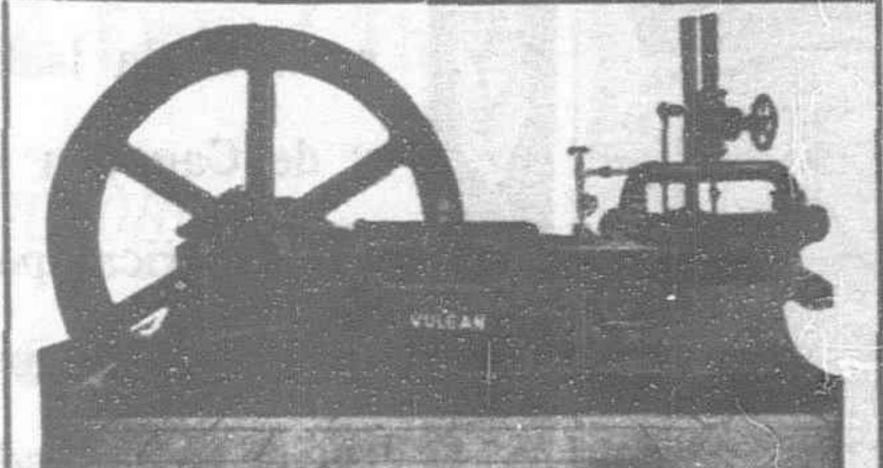
CIGARETTE

MANUFACTURERS

## VULCAN IRON WORKS

San Francisco, California, U. S. A.





Ice Machines of Any Desired Capacity

CATALOGUE

Cable Address: "VULCAN" San Francisco

## J. P. WILSON

Steam Launches, Agricultural Implements and Machinery

ALL CLASSES OF MACHINERY REPAIRED

Barraca No. 11, Binondo, Manila

Hongkong Office

ROSENSTOCK'S

HONGKONG - MANILA - SHANGHAI 12 Queen's Road Ctl.

P. O. Box 218

DIRECTORY

Shanghai Office 9 Hankow Road American P. O.

Bcx 974

C. W. Rosenstock, Sole Proprietor Main Office, 5 Isla de Romero, Manila, P. I. P. O. Box 400

A Complete Directory of Hongkong, Manila and Shanghai, containing an alphabetically arranged list of Commercial Firms, Professional Men, and Foreign Residents. Also a complete CLASSIFIED BUSINESS DIRECTORY of each city represented.

Revised and Published twice a year, in January and July. Price \$12.00 Local Currency per year, by subscription; Single Copies \$7.00 Local Currency.

ENGINEER AND FOUNDER

Boiler, Machine Shop and Foundry

## BUREAU OF SCIENCE MANILA

Glycerinated vaccine virus, bacteriologically sterile, physiologically tested before shipping, furnished in vials of 100 units, 50 units, 25 units, and in tubes of 5 and 1 unit, price per unit, P.03 Diphtheria antitoxin, 2000 units, ...... 6.50 Mallein, per dose..... 

PRICES IN PHILIPPINE CURRENCY

PACKING, POSTAGE OR FREIGHT, 10 PER CENT ADDITIONAL

REMITTANCES TO BE MADE TO

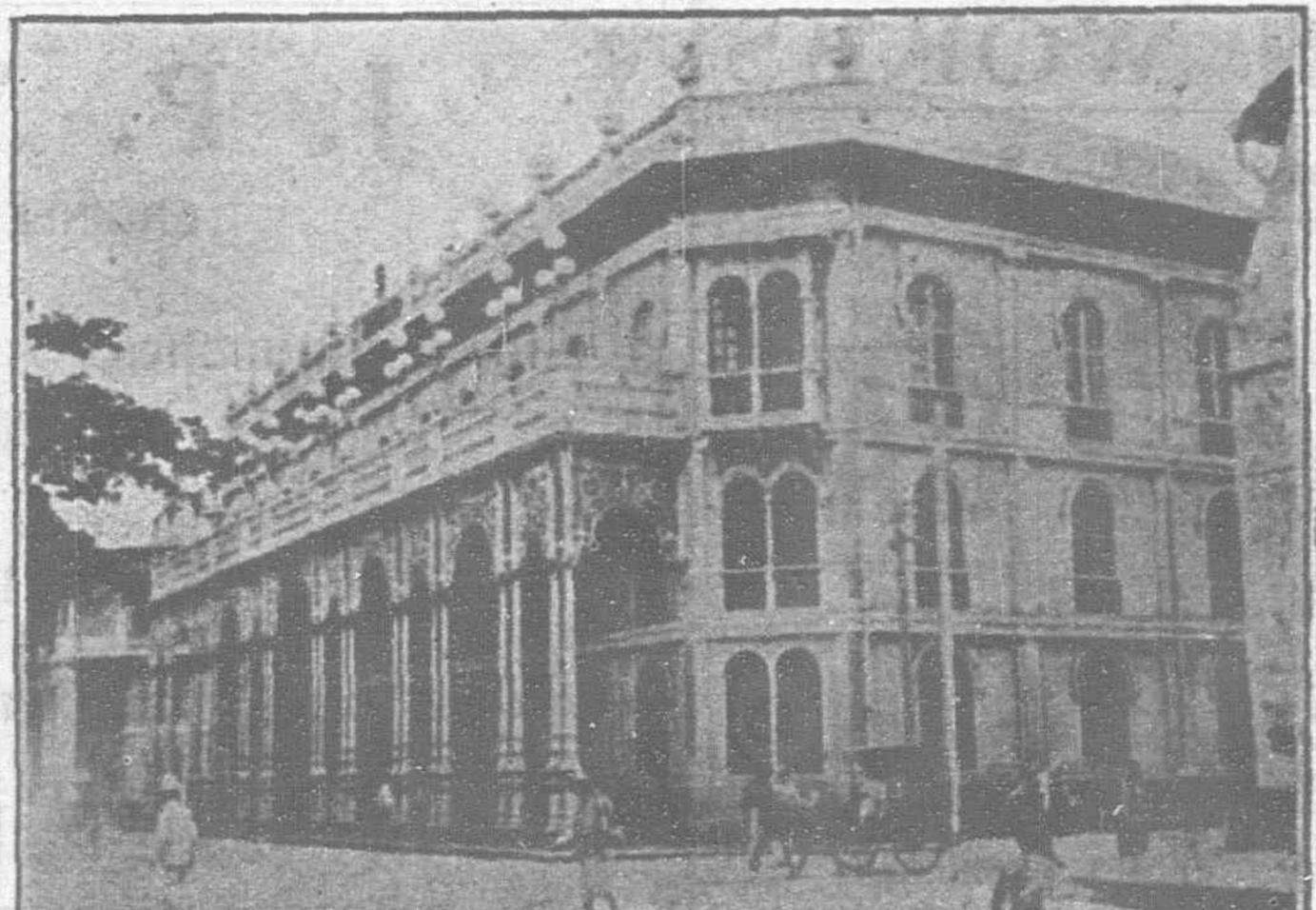
G. M. Nell, Cashier, BUREAU OF SCIENCE, MANILA.





The large stock of Cagayan and Isabela leaf tobacco from which we select our materials, is the best guarantee of the excellence of our products.

RICARDO E. BARRETTO GENERAL MANACERS ANTONIO M. BARRETTO



Las grandes existencias de tabaco rama de la Isabela y de Cagayán que esta fábrica posee son la mejor garantia de la bondad de sus productos.

\*\*\*\*\*\*\*\*\*\*\*\*\*

## ALBERT J. G. DENNEY

MINING ENGINEER, TIENTSIN, NORTH CHINA

SURVEYS OF MINERAL CLAIMS, TOWNSITES, COAL AND TIMBER CLAIMS, LAND PURCHASES, ETC.

REPORTS ON MINES AND MINERAL CLAIMS. GOLD MINES A SPECIALTY. EX-PLORATION, SURVEYS, ETC.

Cable Address: DENNEY, TIENTSIN

X66669999-

Codes: Bedford McNeil, Moreing & Neal: A B C, New Edition.

Cable Address: "HYDRUS"

## RUSSELL & CO.

P. O. Box 194 Telephone No. 670

Produce, Exchange, Real-Estate and Ship Brokers

Commission Agents and Auctioneers

CHARTERS, COAL, EXCHANGE, RICE, HEMP, COPRA, SUGAR, ETC.

55 Calle Soledad

MANILA, P. I.

## J. E. AINSWORTH

CIVIL ENGINEER-CONTRACTOR

DEPUTY MINERAL SURVEYOR SURVEYS FOR TORRENS TITLES

No. 3 Callejon San Gabriel, Manila

LATE ASST. ENGINEER PORT WORKS

## FAR EASTERN REVIEW

\$2.50, U. S. Currency, per year

Foreign, \$3.00 U. S. Currency

## A. J. EVELAND

Mining Engineer and Geologist MANILA, P. I.

Late Geologist Mining Bureau, Philippine Islands

OF PHILIPPINE MINES AND MINERAL LANDS

Cable Address: "EVELAND, MANILA"

Codes: Western Union, Bedford, McNeill

· 利用的机械 - 自然的自然的 2 · 当然 - 经各级的总统

TO STATE OF THE PARTY OF THE PA

# A STRAIGHT TALK TO THE TRADE

QUALITY AND UNIFORMITY OF GRADE IS OUR WATCHWORD.

THAT IS WHY YOU HEAR ON ALL SIDES ALHAMBRA CIGARS

AND CIGARETTES SPOKEN OF SO HIGHLY :=: :=: :=: :=:

A Few of Them

REINA VICTORIA

IMPERIALES

PRINCESAS

HIGH LIFE

MARINES



And Then Some

INCOMPARABLES

PANETELAS

FAVORITOS

PERFECTOS

LONDRES

REGALIA

Because!

The finest selected Isabela leaf is used in their manufacture. Extreme care is paid to the latest approved shapes.

The quality of each and every grade is strictly maintained.

THE PRICE IS RIGHT

CIGAR AND CIGARETTE

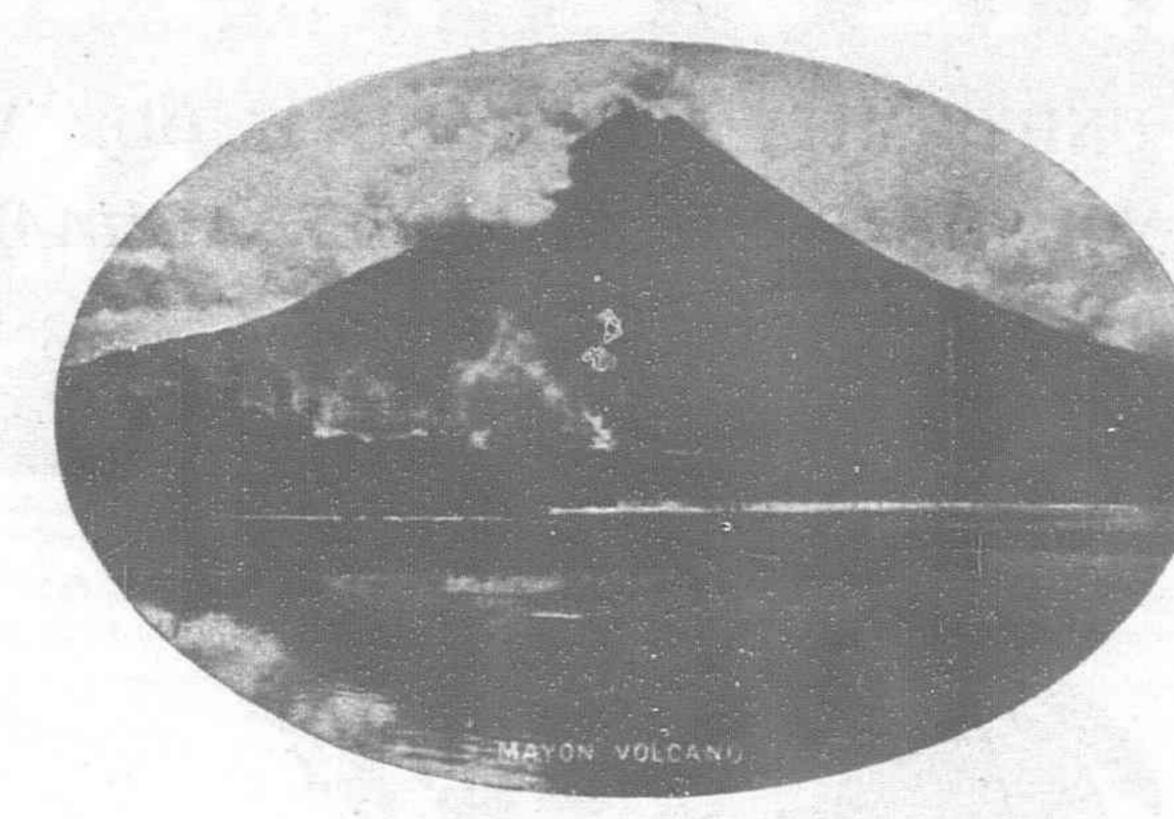
CIGAR AND CIGARETTE

FACTORY-MANILA

# CLARKE'S

MAYON

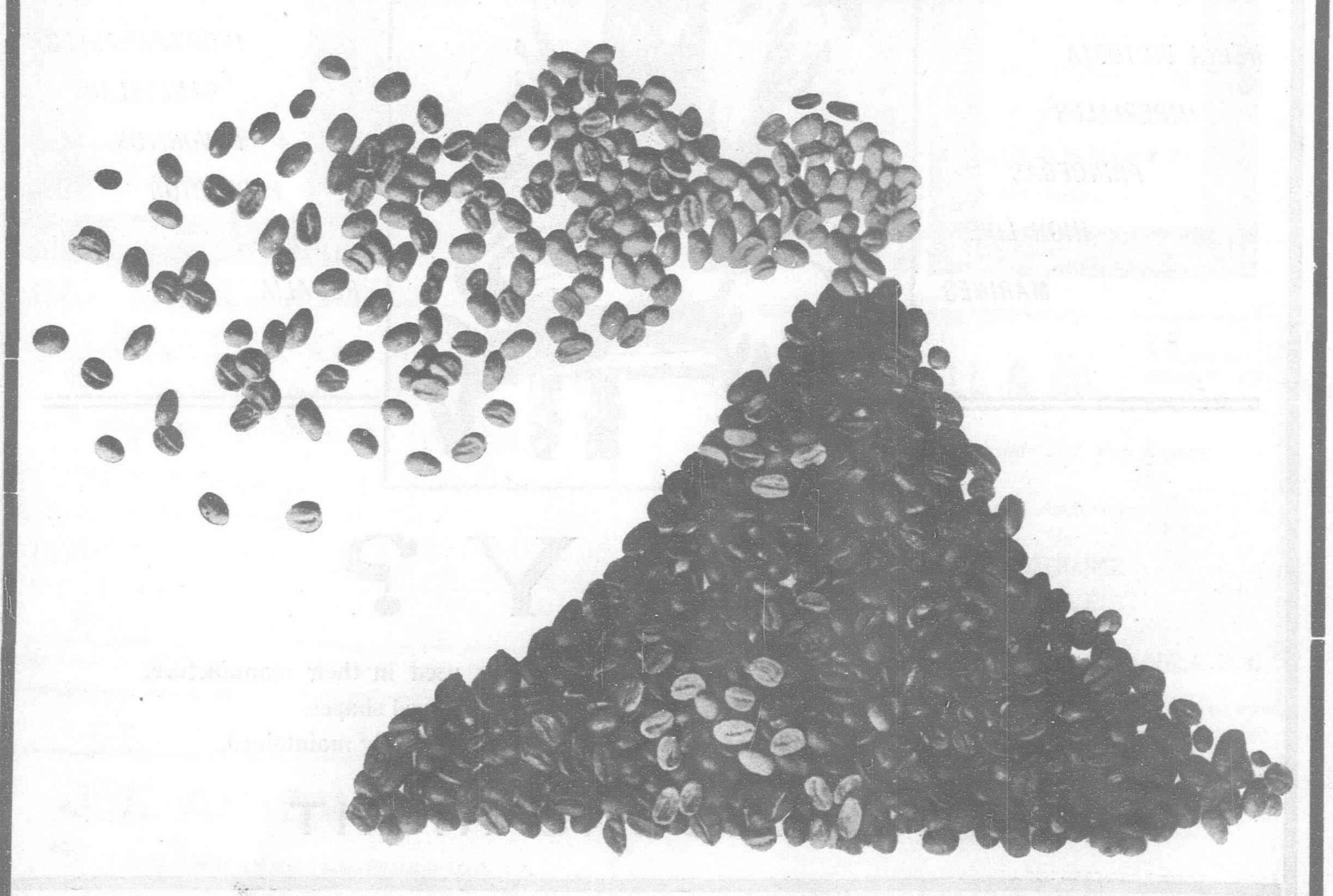
MANILA



COFFEE

PHILIPPINE IS.

The Brand That Made The Mountain Famous



## CLARKE'S MAYON COFFEE

EQUALS "SATISFIED CUSTOMERS"

Once Tried Always Used-Never Refused

## "GERMINAL" Cigar and Cigarette Factory

4 CALLE MARQUES DE COMILLAS, MANILA, P. I.

FOR A MILD CIGARETTE

SMOKE TRY THE

"FLOREAL"



TRADE MARK

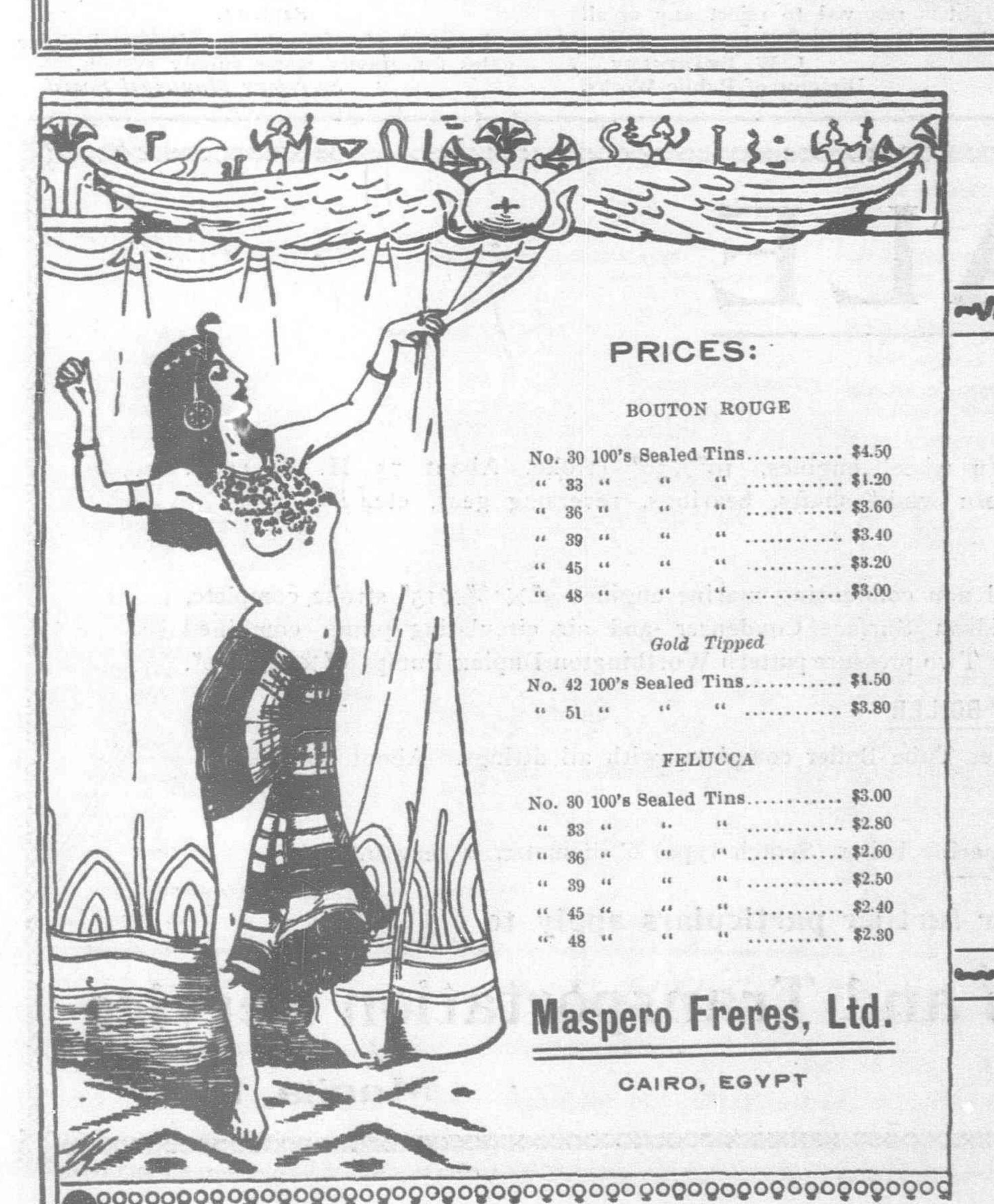
GERMINAL CIGARS
THE UNIVERSAL

FAVORITE

This means the approval of discriminating critics; and shows an appreciation of the delicious richness of the choicest tobacco leaf, the exquisite aroma of an original blend, the finished touch throughout of an expert's hand.

"FLOREAL" Cigarettes





## MASPERO FRERES, LTD.

HIGH CLASS

# EGYPTIAN CIGARETTES

"BOUTON ROUGE" AND "FELUCCA"

These Cigarettes are manufactured and packed at Cairo, Egypt, with extreme care, so as to retain the freshness of their exquisite aroma, and ensure their reaching the consumer in absolutely perfect condition.

No better Egyptian Cigarette than our celebrated

## "BOUTON ROUGE"

has ever been offered to the public, and connoisseurs readily admit that nothing better can be produced, while our popular

## "FELUCCA"

is a production fully equal to, if not surpassing in quality and flavour, the best Egyptian Cigarettes hitherto placed on the market.

## MUSTARD & CO.

AGENTS

9a Nanking Road

SHANGHAI

## OFFICIAL

## OFFICE OF THE BUREAU OF SUPPLY

Manila, P. I., July 15, 1907.

Sealed proposals in triplicate will be received at this office up to 11 a.m., August 5th, 1907, when they will be opened in the presence of the attending bidders, for supplying various amounts of Butts, Canvas, Couplings, Drills, Duck, Gauge Glasses, Grindstones, Hoes, Hooks, Hose, Injectors, Leads, Mowers, Nails, Paint, Pullers, Screws, Steel, Stones, Thread, Valves, Flags and Paper.

Proper forms and specifications may be had on application to this office.

E. G. SHIELDS, Purchasing Agent.

## DIVISION OF TRANSPORTATION, Q. M. DE-PARTMENT

OFFICE OF WATER TRANSPORTATION
Manila, P. I., July 18, 1907.

Sealed proposals in duplicate, will be received at this office up to 10 a. m. August 16, 1907, when they will be opened in the presence of the attending bidders, for supplying Six (6) Fire Pumps. Proper forms and description of Pumps may be had on application to this office. Envelopes containing proposals should be plainly marked "Proposals for Fire Pumps" and addressed to the undersigned. W. S. Scott, Capt. Quartermaster, U. S. Army, in charge Water Transportation.

## PROPOSALS FOR CONSTRUCTION

HEADQUARTERS PHILIPPINES DIVISION, OFFICE OF CHIEF QUARTER MASTER

Manila, P. I., July 6, 1907.
Sealed Proposals, in triplicate, subject to
the usual conditions, for furnishing all labor
and material required to construct four (4)
reenforced concrete Prison Buildings and one

(1) reenforced concrete Wall at Fort William McKinley, Rizal, P. I., will be received here until 10:00 a. m., September 6th, 1907, and then opened. Blank form for proposals and full information furnished on application. Envelopes containing proposals should be endorsed "Proposals for Construction of Prison Buildings and Wall at Ft. McKinley, to be opened at 10:00 a. m., Sept. 10th, 1907," and addressed Chief Quartermaster Philippines Division, Manila, P. I.

## TO CONTRACTORS

OFFICE OF THE BUREAU OF PUBLIC WORKS, SANTA POTENCIANA BUILDING.

Manila, P. I., July 15, 1907.

Sealed proposals addressed to the undersigned and marked "Proposal for Constabulary Barracks, C. A. Set No. 157" and "Proposal for Provincial Building, C. A. Set 112," will be received at this office and the office of the District Engineer, 8th District, Albay, Albay, P. I., until II:00 a. m., July 31, 1907, for furnishing all material and doing all labor required to fully complete the erection of a Constabulary Barracks and Provincial Building at Albay, Albay, P. I., in the manner and on the conditions set forth in the form of proposal and the plans and specifications copies of which with other information may be obtained upon application at the office of the Director of Public Works, Manila, P. I., or of the District Engineer, Albay, Albay, P. I.

Bidders are requested to submit bids for each building and for the two buildings together.

The right is reserved to reject any or all bids or to waive any defects.

J. W. BEARDSLEY, Director of Public Works.

## OFFICE OF THE BUREAU OF SUPPLY

Manila, P. I., July 20, 1907.

Sealed proposals in triplicate will be received at this office up to 11. a. m. August 3rd, 1907, when they will be opened in the presence of the attending bidders, for supplying various lengths and sizes of Amuguis, Dungon, Guijo, Red Lauan, Molave, Narra and Tindalo Lumber.

Proper forms and specifications may be had on application to this office.

E. G. SHIELDS, Purchasing Agent.

## OFFICE OF CHIEF SUPPLY OFFICER

Manila, P. I., June 5, 1907.

Sealed proposals in triplicate, subject to the usual conditions, will be received at this office until ten a. m. August first, 1907, for furnishing the Constabulary with the following Quartermaster supplies:

2,500 blankets, khaki, single, 3½ pounds 35,000 yards khaki cloth, Stockport No. 2 (Leman & Gatty's dye) 2,000 shirts, khaki,

flannel 3,000 pairs shoes, tarred hemp sole.

Terms, f. o. b Manila Bay. Payment subject to inspection and final acceptance in Constabulary bodegas.

MARK L. HERSEY, Chief Supply Officer.

#### August 1.

Proposals for furnishing 32 tons of castings for Gravity Water and Sewer System.

Secretary Municipal Board.

## Sept. 14.

Proposals for furnishing valves and sluice gates for gravity water supply system.

Secretary Municipal Board.

# FOR SALE

## STERN WHEEL ENGINES

Two sets of stern wheel engines, 10"×36" stroke. About 75 H. P. each. Complete with stern wheel shafts, bearings, reversing gear, etc.

## MARINE ENGINE

One set compound non condensing marine engines  $9'' \times 18'' \times 15''$  stroke complete, and one set Davidson Surface Condenser and air circulating pump combined  $5\frac{1}{2}'' \times 6'' \times 8'' \times 8''$ . Two pressure pattern Worthington Duplex Pumps  $6'' \times 3\frac{1}{2}'' \times 6''$ .

## ROBERT'S WATER TUBE BOILER

One Robert's Water Tube Boiler complete with all fittings. About 30 H. P.

## SCOTCH BOILER

One return tube marine boiler (Scotch type) 6' diameter, 6' length.

For further particulars apply to

Manila Navigation and Transportation Service

P. O. Box 288

Manila, P. I.

1 Park 1 - 2 Clare			
Alphabetical List Advertisers  American Asiatic S. S. Co  Anderson & Co., Wm H  Arnold Karberg & Co	38 El Globo	14 La Isla de Cuba	8 Philippine Journal of Science
Atlantic, Gulf & Pacific Co  Balut Pure Manila Rope Factory	6 Findlay & Co	Cover Malthoid	Rosenstock's Hongkong-Manila Shanghai Directory
Banque Sino-Beige Blanco, T British Consul General Special Notice	Germinal Cigar Factory  Gibson, John	5 Mauila Rope Factory	San Mignel Brewery
Caldbeck, MacGregor & Co	Hongkong Rope Mfg. Co., Ltd  Hongkong & Shanghai Banking  Corp  Hongkong & Whampoa Dock Co.,  Ltd  Honolulu Iron Works, The  Hotel Pines  Imperial Hotel, Ltd.,  International Banking Corp	Cover Millar's Kurri & Jarrah Co., Ltd	Shanghai Dock & Eng. Co., Ltd 23 Shewan, Tomes & Co. 10-11 Sino-Belge Banque, 25 4 Southern Pacific Co. 19 Squires, Bingham & Co. 34 Sprungli & Co. 7 Stevenson & Co., Ltd., W. F. 18 Tokyo Imperial Hotel. 17
Cia. Trasatlantica	Jardine, Matheson & Co	Official Advertisements	7 Vulcan Iron Works
Eastern Engineering & Construc- tion Co	Johnson, D. B	Pacific Tank Co	5 Westinghouse Electric & Mfg. Co       27         1 White & Co. (Inc.). J. G
Classified Advertisers' Directory	COAL HANDLING MACHINERY Atlantic Gulf & Pacific Co.	JOURNALS SCIENCE The Philippine Journal of Science	SAW MILLS Cadwallader Company, B. W.
(Please mention this journal)	M. A. Clarke (Mayon)	Waldorf Livery Stables	Jardine, Matheson & Co. John Gibson North Borneo Trading Co., Ltd.
AGRICULTURAL IMPLEMENTS Anderson & Co., W. H. Castle BrosWolf & Sons. Wilson & Co., Fred	Atlantic, Gulf and Pacific Co.  Bryan-Landon Company B. W. Cadwallader Company Manila Construction Co.	California Manila Lumber Co. Findlay & Co. Jardine, Matheson & Co. North Bornes Trading Co.	SEED (Garden) Edgar, John R. & Co. SERUM
ALCOHOL DISTILLERS  Cia. General de Tabacos de Filipinas.  Ynchausti & Co.	White & Co., Inc., J. G. CONTRACTORS, ELECTRICAL Arnhold, Karberg & Co.	North Borneo Trading Co., Ltd.  MACHINERY MERCHANTS  Arnhold, Karberg & Co.	Bureau of Science  SHIPPING AGENTS  Castle BrosWolf & Sons
ARTIFICIAL STONE A. Buttler Cement Works, Ltd.	Bryan-Landon Company Campbell, O. F. Castle BrosWolf & Sons	Castle BrosWolf & Sons Findlay & Co. Wilks & Jack	Cia. General de Tabacos Shewan, Tomes & Co. Stevenson & Co., Ltd.
ATTORNEYS AT LAW Gibbs & Gale.	Wilks & Jack CONSULTING ENGINEERS	Wilson & Co., Fred  MARINE ENGINES	SHIPBUILDING AND REPAIRS  Kiangnan Dock and Engineering Co., Ltd
BANKS  Banque Sino-Belge  Hongkong and Shanghai Banking Corp.  International Banking Corp.	Atlantic, Gulf & Pacific Co. Carmichael & Clarke. White & Co. Inc. J. G. Wilks & Jack  DEPARTMENT(STORES	Fairbanks Morse & Co. Manila Nav. & Transportation Service  MILK El Globo.	Hongkong and Whampoa Dock Co., Ltd.  Mitsu Bishi Dock and Engineering Works  North Borneo Trading Co., Ltd.  Shanghai Dock and Engineering Co. Ltd.  Varadero de Manila

BOILER MAKERS Honolulu Iron Works Vulcano Metal Works Wilson, J. P.

BOOKS John R. Edgar & Co. BOOKSELLERS AND STATIONERY Edgar, John R. Lamotte, A. K. McCullough & Co., E. C. BREWERIES

San Miguel Brewery BRIDGE-BUILDERS Atlantic, Gulf and Pacific Co-White & Co., Inc., J. G. Riley, Hargreaves & Co. Ltd. BROKERS, GENERAL

Russell & Co. BUILDING PAPER Pioneer Roll Paper Co. Malthoid Paraffine Paint Co. CARRIAGE MANUFACTURERS La Parisien Carriage Factory

Philippine Carriage Factory
CEMENT Anderson & Co., W. H. Chinese Engineering and Mining Co., Ltd. Green Island Cement Co., Ltd.

CHEMISTS AND METALLURGICAL ENGINEERS Pittsburg Testing Laboratory, Ltd. CIGAR AND CIGARETTE MANUFACTURERS Alhambra Cigar Factory Cia. Gral. de Tabacos de Filipinas Germinal Cigar Factory La Insular Cigar Factory La Yebana Cigar Factory Olsen & Co., Walter E.

CIVIL ENGINEERS Ainsworth, J. E. Manila Construction Co.

COAL DEALERS Cihinese Engineering and Mining Co. Ltd. INSURANCE Fndlay & Co. Madrigal, V.

DEPARTMENTISTORES La Pnerta del Sol

DIAMONDS-WATCHES-JEWELRY Greilsammer Hos. DREDGERS

Dickeson, Jones & Co. Priestman Bros., Ltd. **ELECTRIC LIGHTING PLANTS** 

Felten & Guilleaume-Lahmeyerwerke A. G. Manila E. R. R. & L. Co. Westinghouse Electric & Mfg. Co.

ELECTRICAL SUPPLIES Arnhold Karberg & Co. Bryan-Landon Company Felten & Guilleaume-Lahmeyerwerke A. G. Jardine, Matheson & Co. Westinghouse Electric & Mafg. Co. **EXCAVATORS AND ELEVATORS** Dickeson, Jones Co. Priestman Bros. Ltd.

MERCHANTS Henry W. Peabody & Co. FIBRE MACHINERY Pioneer Iron Works FIELD GLASSES Greilsammer Hos. **FOOD PRODUCTS** 

Anderson & Co., W. H. Libby McNeil & Libby Swift & Co. GASS. ENGINES Fairbanks, Morse & Co.

**EXPORT AND IMPORT COMMISSION** 

Castle Bros.-Wolf & Sons GLASS AND MIRRORS Squires, Bingham & Co. HARDWARE Calif Manila Lumber Co.

HOTELS Hotel Pines Tokyo Imperial Hotel New Metropole Hotel ICE MACHINERY Vulcan Iron Works

Find ay & Co. Stevenson & Co., Ltd., W. F. El Globo. La Isla de Cuba Sprungli & Co.

MINING MACHINERY Atlantic Gulf & Pacific Co. Allis Chalmers Co.

MINING COMPANIES Chinese Engineering & Mining Co. Eastern Mining Co.

MINING ENGINEERS Denney, A. G. C. Eveland, A. J.

MINERAL WATERS Caldbeck, Macgregor & Co.

**MOTOR LAUNCHES** Riley, Hargreaves & Co. Ltd. Fairbanks, Morse & Co.

OFFICE FURNITURE John Gibson McCullough & Co. Inc., E. C

PAINTERS John Dow

PAPER DEALERS McCullough & Co. Inc., E. C. Schmidt & Ziegler

PHOTOGRAPHIC SUPPLIES Squires & Bingham

PRINTERS McCullough & Co., Inc., E. C. RAILROADS

Southern Pacific Co. RAILROAD SUPPLIES Moll, Kunzli & Co.

ROPE MANUFACTURERS Hongkong Rope Mfg. Co. Ltd. Santa Mesa Rope Works Ynchausti & Co.

Orenstein & Koppel, Ltd.

STEAMSHIP COMPANIES American Asiatic S. S. Co. China and Manila S. S. Co., Ltd. Cia. General de Tabacos Great Northern S. S. Co. Occidental and Oriental S. S. Co Pacific Mail S. S. Co. Toyo Kisen Kaisha S. S. Co. Transatlantica S. S. Co. Ynchausti & Co.

STERN WHEEL ENGINES Manila Nav. & Transportation Service

**STEVEDORES** Mendoza, A. SUGAR MACHINERY Wilson & Co.. Fred Honolulu Iron Works SURVEYING INSTRUMENTS

Greilsammer Bros. TANKS

Pacific Tank Co.

TILES AND BRICKS A. Butler Cement Works, Ltd. Fressel & Co., C. Green Island Cement Co., Ltd. Chinese Eng. Mining Co.

TOBACCO DEALERS Cia. General de Tabacos Mustard & Co. Olsen & Co., Walter E. **TYPEWRITERS** Remington Typewriter Co.

WATER WHEELS Pelton Water Wheel Co. WELL DRILLING MACHINERY Castle Bros.-Wolf & Sons Keystone Driller Co.

WINDMILLS Fairbanks, Morse & Co. Castle Bros-Wolf & Sons WINE AND SPIRIT MERCHANTS Caldbeck, Macgregor & Co.

YACHT Page 35

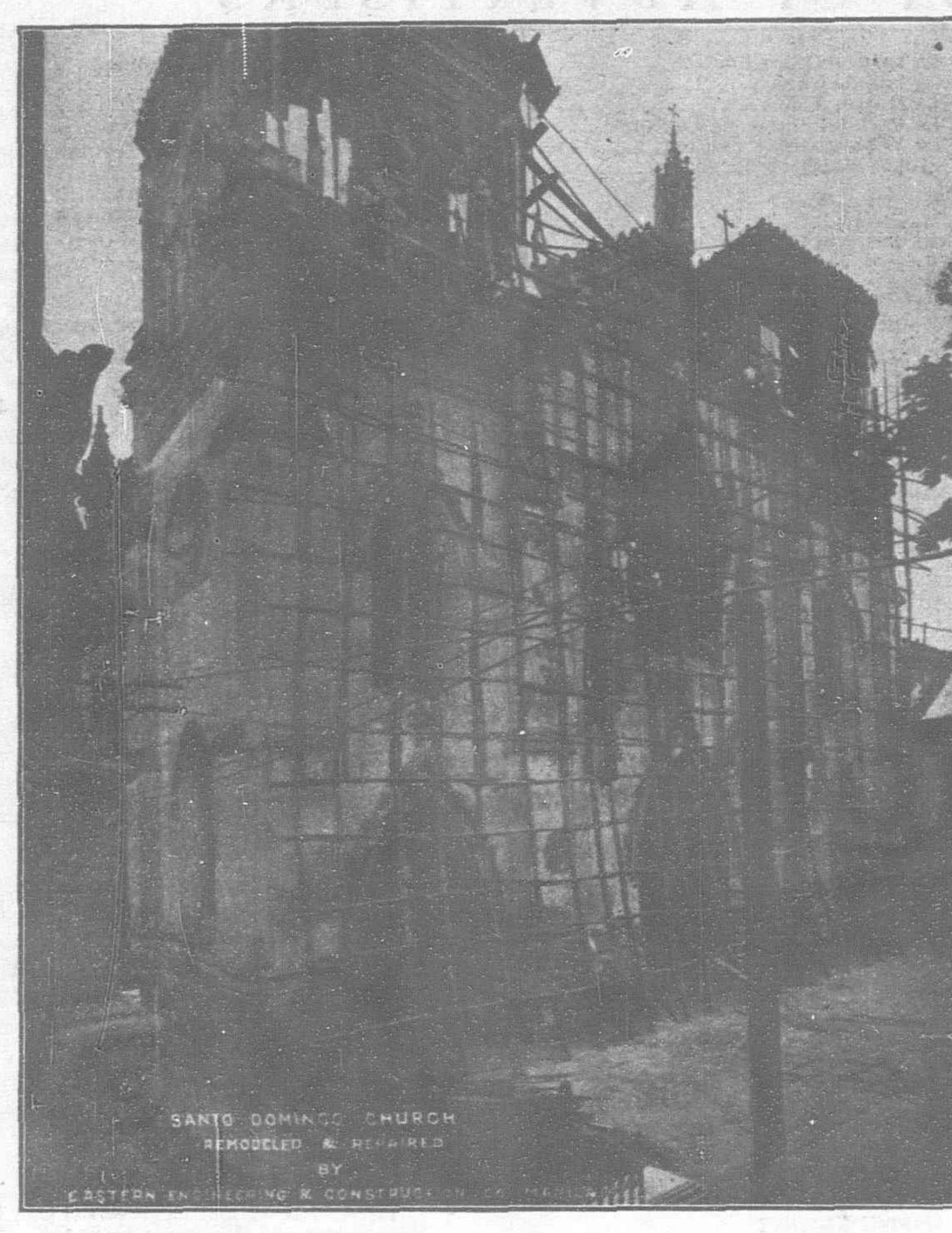
## STRAIGHT TALKS

THE FAR EASTERN REVIEW

is a high-class monthly journal devoted to the COMMERCE.

ENGINEERING and FINANCE of Far Eastern countries and aims

to give a faithful presentation of facts regarding the industries and undeveloped resources of the Orient, to attract capital to the many opportunities for profitable investments and to indicate to manufacturers openings for the extension of trade.



SANTO DOMINGO CHURCH UNDER REPAIRS BY THE EASTERN ENGINEERING & CONSTRUCTION CO.

Cable Address

Telephone 290 P. O. Box 782

EASTERN ENGINEERING

AND CONSTRUCTION CO.

MANILA, P. I.

Civil Engineers

Architects

Contractors

HARRY ALLYN,

General Manager

# MALIFICID

## MINERAL ROOFING

NOT THE SAME AS OTHER ROOFINGS
WHICH MAY RESEMBLE "MALTHOID"

## OUR MOTTO:

"If it is not true, speak it not;
If it is not seemly, do it not."

—Marcus Aurelius.

MALTHOID is the Roofing for the Orient; it lasts longer, gives better satisfaction, and is cheaper than galvanized iron; besides it is as cool as a nipa roof, is weather proof and will not blister or tear.

## THE PARAFFINE PAINT CO.

SAN FRANCISCO

Agents for the Philippines

EASTERN ENGINEERING AND CONSTRUCTION CO.

293 San Miguel

Manila, P. I.